Release in full

HUBER 5-D

MURPHY OIL USA, INC.

HUBER NO. 5

WELL HISTORY

HUBER NO. 5D

SUMMARY OF WELL HISTORY

WELL NAME AND NUMBER:	Huber No. 5-D
LOCATION:	SW¼ NE¼ Section 10, T28N, R51E
ELEVATION:	2080' G.L. 2092' RKB
DRILLING CONTRACTOR:	Signal Drilling Company
SPUDDED:	November 26, 1968
DRILLING RIG RELEASED:	December 19, 1968
COMPLETED:	January 8, 1969
COMPLETED AS DISPOSAL WELL:	November 17, 1997
TOTAL DEPTH:	7300' Driller 7307' Schlumberger
CASING:	32 Jts. of 8-5/8" set at 1028' 216 Jts. of 5-1/2" set at 7307'
PERFORATION FOR DISPOSAL:	6185-6187 6421-6423 7240-7250 7262-7268 7272-7276

HUBER DEVONIAN NO. 5

SUMMARY OF WELL HISTORY

WELL NAME AND NUMBER:	Huber No. 5
LOCATION:	SW¼ NE¼ Section 10, T28N, R51E 1980' from N Line & 1420' East line
WORKING INTEREST:	.6477080
REVENUE INTEREST:	.5359784
ELEVATION:	2080' G.L.; 2092' KB
DRILLING CONTRACTOR:	Signal Drilling Co. Rig 3
SPUDDED:	November 26, 1968
DRILLING RIG RELEASED:	December 19, 1968
COMPLETED:	January 8, 1969
TOTAL DEPTH:	7300' Driller; 7307 Schlumberger
CASING:	32 jts 8-5/8", 24#, J-55 cemented @ 1028' KB w/575 sx reg cmt w/3% CaCl 216 jts 5-1/2" 14 & 17# J-55 & N80 cmt @ 7307' W550 Sx 50-50 Poz & 50 sx latex
HOLE SIZE:	12-1/4" from surf to 1031', 7-7/8" from 1031' to T.D.
LOGS:	Schlumberger Laterolog-3 1028'-7302 Schlumberger SNP 4800'-7306' Schlumberger Microlaterolog - 4850'-4970', 5150'-5250', 6060'-730 Schlumberger FDC - 4850'-4970', 5150'-5250', 6060'-730 Schlumberger Movable Oil Plot - 4850'-4970', 5150'-5250', 6060'-730
LOST CIRCULATION:	Minor amounts at: 5600'-5700' 6260'-6310' 5900'-5950' 6350'-6430' 6000'-6050' 6470'-6500' 6090'-6160'
JUNK IN HOLE:	Piece of junk sub 3"x14" left in ho

Rec. APR 20 1990

A.F.E. No. 0-0504-010

(SFD)

MURPHY OIL USA, INC.
AUTHORITY FOR EXPENDITURE
HUBER NO. 5
SW¼ NE¼ SECTION 10, T28N, R51E
ROOSEVELT COUNTY, MONTANA

PROPOSAL & JUSTIFICATION:

The Huber No. 5 well is currently temporarily abandoned with Nisku perforations open 7262'-64' and 7242'-48' with a Model D production PKR set between them. It is proposed to drill out the Model D production packer at 7252' and run a HLC Thermal Multigate Decay Log from 7300' up to 4800' and evaluate. After evaluation of the logs perforate the best zone and test.

ESTIMATED COST

Rig	$10,000
HLC Thermal Muligate Decay Log	5,517
Perforate & CIBP	3,500
Acid	2,000
Trucking	1,500
Hydro-Test	1,000
Rental Tools	1,000
Supervision & Miscellaneous	1,483
TOTAL ESTIMATED COST	$26,000

APPORTIONMENT OF TOTAL COST

Murphy Oil USA, Inc.	97.5000%	$25,350
Geolinear Company	2.5000%	650

APPROVAL OF EXPENDITURE

Requested by:

Raymond Reede 4-17-90
Raymond Reede Date

Approved by:

A.W. Simpson 4/27/90
A.W. Simpson Date

RR/jh
April 17, 1990

DATE JOB COMPLETED.....
APPROXIMATE COST.....
BY.....

A.F.E. No. 0-0504-010
Supplement No. 1

MURPHY OIL USA, INC.
AUTHORITY FOR EXPENDITURE
HUBER NO. 5
SW¼ NE¼ SECTION 10, T28N, R51E
ROOSEVELT COUNTY, MONTANA

PROPOSAL & JUSTIFICATION:

The casing was parted on this well, the rig time and rental tools were more than expected. This also includes testing one more zone.

SUPPLEMENT COST

	Original	Actual	Supplement
Rig	$10,000	$23,485	$13,485
HLC Thermal Log	5,517	4,598	(919)
Perforate & CIBP	3,500	5,905	2,405
Acid	2,000	2,310	310
Trucking	1,500	2,904	1,404
Hydrotest	1,000	2,158	1,158
Rental Tools	1,000	4,640	3,640
Supervision & Miscellaneous	1,483	7,000	5,517
TOTAL SUPPLEMENT COST	$26,000	$53,000	$27,000

APPORTIONMENT OF SUPPLEMENTAL COST

Murphy Oil USA, Inc.	97.5000%	$25,350	$51,675	$26,325
Geolinear Company	2.5000%	650	1,325	675

APPROVAL OF EXPENDITURE

Requested by:

Raymond Reede 12-21-90
Raymond Reede Date

Approved by:

Paul E. Ramsey 1/4/91
Paul Ramsey Date

RR/jh
December 21, 1990

Sid
This is the last AFE that we had approved

DATE JOB COMPLETED_____
APPROXIMATE COST _____
BY_____

A.F.E. No. 80600

OBJECT CODE: 232910

MURPHY EXPLORATION AND PRODUCTION COMPANY
AUTHORITY FOR EXPENDITURE
EAST POPLAR UNIT SALT WATER STATION NO. 5-D
SE SE SECTION 12, T28N, R51E
EAST POPLAR FIELD - ROOSEVELT COUNTY, MONTANA

REPLACE SWD PUMP

PROPOSAL AND JUSTIFICATION:

The Ajax TP5000 Triplex pump at East Poplar Unit No. 5-D is in bad shape. The crankshaft is bad and the fluid end is washed out beyond repair. This salt water disposal pump handles 3100 barrels of salt water per day.

It is proposed to replace this pump with a new 346-P Oil well pump with 3 3/4" plungers.

ESTIMATED COSTS

346-P Oil well Pump w.3 3/4" Plungers----------	$39,000
75 H.P. Electric Motor----------	2,500
Roustabouts----------	1,000
Welder----------	1,000
Supervision and Miscellaneous ----------	2,500
Total Estimated Cost ----------	$46,000

APPORTIONMENT OF TOTAL ESTIMATED COST

MURPHY EXPRO	76.937788%	$35,391
DOIL OIL AND GAS	20.965647%	9,644
MUNOCO COMPANY	02.096565%	965

APPROVAL OF EXPENDITURE

Requested By:

Raymond Reeds 01/29/98
Date

Approved By: Jan 29, 98
Date

Sidney W. Campbell for

January 29, 1998

A.F.E. No. 70402
OBJECT CODE: 232900
SUPPLEMENT NO.1

MURPHY EXPLORATION AND PRODUCTION COMPANY
AUTHORITY FOR EXPENDITURE
HUBER NO. 5
SW¼ NE¼ SECTION 10, T28N, R51E
EAST POPLAR FIELD - ROOSEVELT COUNTY, MONTANA

SWDW-CONVERSION

PROPOSAL AND JUSTIFICATION:

The Huber No. 5 was recently converted from a producer to a Mission Canyon and Nisku saltwater disposal well. This supplement is required as rig time (costs), wireline services and acid stimulation work was more than what was orginally anticipated. Some of the extra work was imposed by the E.P.A.

ESTIMATED COSTS

	ORGINAL	SUPPLEMENT	TOTAL
SWD Conversion	$65,000	$24,000	$89,000

APPORTIONMENT OF TOTAL ESTIMATED COST

		ORIGINAL	SUPPLEMENT	TOTAL
MURPHY EXPRO	97.500000%	$63,375	$23,400	$86,775
GEOLINEAR COMPANY	02.500000%	1,625	600	2,225

APPROVAL OF EXPENDITURE

Requested By:

Raymond Reede MAR 11,98
Date

Approved By:

MAR 11,98
Date

Sidney W. Campbell 3-11-98
Date

A.F.E. No. 80401
OBJECT CODE: 232910

MURPHY EXPLORATION AND PRODUCTION COMPANY
AUTHORITY FOR EXPENDITURE
EAST POPLAR UNIT SALT WATER STATION HUBER NO. 5-D
SW SE SECTION 19, T28N, R51E
ROOSEVELT COUNTY, MONTANA

PROPOSAL AND JUSTIFICATION:

This well failed a Mechanical Integrity test. The casing and tubing were tested and the packer was changed.

ESTIMATED COSTS

Workover Rig	$ 7,000
Rental Tools	3,000
Hydrotest Tubing	1,150
Trucking	800
Roustabouts	250
Supervision and Misc.	800
Total Estimated Cost	$13,000

APPORTIONMENT OF TOTAL ESTIMATED COST

MURPHY EXPRO	76.937788%	$10,002
DOIL OIL & GAS	20.965647%	2,725
MUNOCO COMPANY	2.096565%	273

APPROVAL OF EXPENDITURE

Requested By:

Ray Reede 6/30/98

Approved By:

[signature] June 1, 98
Date

Sidney W. Campbell 7-1-98
Date

A.F.E. NO._____
OBJECT CODE_____

MURPHY EXPLORATION AND PRODUCTION COMPANY
AUTHORITY FOR EXPENDITURE
EAST POPLAR UNIT SALT WATER STATION HUBER NO. 5-D
SE SE SECTION 19, T28N, R51E

PROPOSAL AND JUSTIFICATION:

This well failed a Mechanical Integrity Test. The casing and tubing were tested and the packer was changed.

ESTIMATED COSTS

Workover Rig	$ 7,000
Rental Tools	3,000
Hydrotest Tubing	1,150
Trucking	800
Roustabout	250
Supervison and Misc.	800
TOTAL ESTIMATED COST	$13,000

APPORTIONMENT OF TOTAL ESTIMATED COSTS

MURPHY EXPRO.	76.937788%	10,002
DOIL OIL & GAS	20.965647%	2,725
MUNOCO COMPANY	2.096565%	273

APPROVAL OF EXPENDITURE

Requested by:

Ray Reede 6-30-98
Ray Reede Date

Approved by:

Sidney Campbell Date

A.F.E. No. 90603
OBJECT CODE: 232900

MURPHY EXPLORATION AND PRODUCTION COMPANY
AUTHORITY FOR EXPENDITURE
EAST POPLAR UNIT SALT WATER STATION HUBER NO. 5-D
SW SE SECTION 19, T28N, R51E
ROOSEVELT COUNTY, MONTANA

PROPOSAL AND JUSTIFICATION:

The subject well has developed another tubing leak. It is the third leak in a 6 week period. Inspection of the leaks indicated they were caused by electrolysis. Therefore, a recetifer and ground bed have been installed to control the electrolysis.

ESTIMATED COSTS

Workover Rig	$ 1,900
Pump Truck	500
Roustabouts	600
Hydrotest	1,200
Packer	800
Electrician	2,000
Cathodic Protection Installation	4,000
Supervision and Misc.	1,000
Total Estimated Cost	$12,000

APPORTIONMENT OF TOTAL ESTIMATED COST

MURPHY EXPRO	76.937788%	$ 9,233
DOIL OIL & GAS	20.965647%	2,516
MUNOCO COMPANY	2.096565%	251

APPROVAL OF EXPENDITURE

Requested By:

Ray Reede 6/08/99

Approved By:

Sidney W. Campbell 6-8-99
Sidney W. Campbell Date

Date

A.F.E. No. 70402

OBJECT CODE: 232900

MURPHY EXPLORATION AND PRODUCTION COMPANY
AUTHORITY FOR EXPENDITURE
HUBER NO. 5
SW¼ NE¼ SECTION 10, T28N, R51E
EAST POPLAR FIELD - ROOSEVELT COUNTY, MONTANA

SWDW-CONVERSION

PROPOSAL AND JUSTIFICATION:

The produced salt water from the south end of the East Poplar Field is currently being injected into the EPU No. 8-D disposal well. The water is injected into the Judith River formation at 830'. We will soon be reaching the maximum cumulative amount of water that is allowed to be injected into this zone.

It is proposed to convert the watered out and shut-in Huber No. 5 (drilled during 1968) into a saltwater disposal well. Water formerly being disposed of by EPU No. 8-D will then be transferred ±1400' to the Huber No. 5 SWDW. The well work will be achieved by squeezing off open perforations 5185-87', setting a 2⅞" X 5½" packer at ±6100' and injecting water into the Mission Canyon (6185-87' & 6421-23') and Nisku (7242-48' & 7262-64') formations. An EPA UIC Permit Application has been submitted to provide for this conversion and approval is imminent. A mechanical integrity test and a radioactive tracer survey or water flow log must be performed proir to commencing injection.

ESTIMATED COSTS

Rig	$19,500
Cement & services	7,500
Rental Tools	2,500
Hydrotest	1,500
E-Line Work (Waterflow)	5,000
Roustabout	4,500
Trucking	2,500
2⅞" Fiberglass Pipe	12,000
Connections	1,000
Coated Packer	1,600
Supervision and Miscellaneous	5,400
Total Estimated Cost	$65,000

APPORTIONMENT OF TOTAL ESTIMATED COST

MURPHY EXPRO	97.500000%	$63,375
GEOLINEAR COMPANY	02.500000%	1,625

APPROVAL OF EXPENDITURE

RECORD OF COMMUNICATION

☑ PHONE CALL ☐ DISCUSSION ☐ FIELD TRIP ☐ CONFERENCE
☐ OTHER (SPECIFY)

(Record of item checked above)

TO: Murphy
Brian Davis (817) 877-7809

FROM: Lc Carson

DATE: 2/12/98

TIME: 10:15

SUBJECT: Murphy Huber #5 (MT2779-04278)

SUMMARY OF COMMUNICATION

Called Brian Davis to respond to his questions:
Brian out, so talked to Dave Petrie.

No letter is either Huber #5 or EPU #8-D files that says Murphy will P&A the EPU #8-D when Huber #5 is converted.

Only statement in Huber #5 permit application and in EPU #8-D Compliance File that "water now disposed of in EPU #8-D will be disposed of in Huber #5, when well is converted to injection. Huber #5 to be a replacement for EPU #8-D.

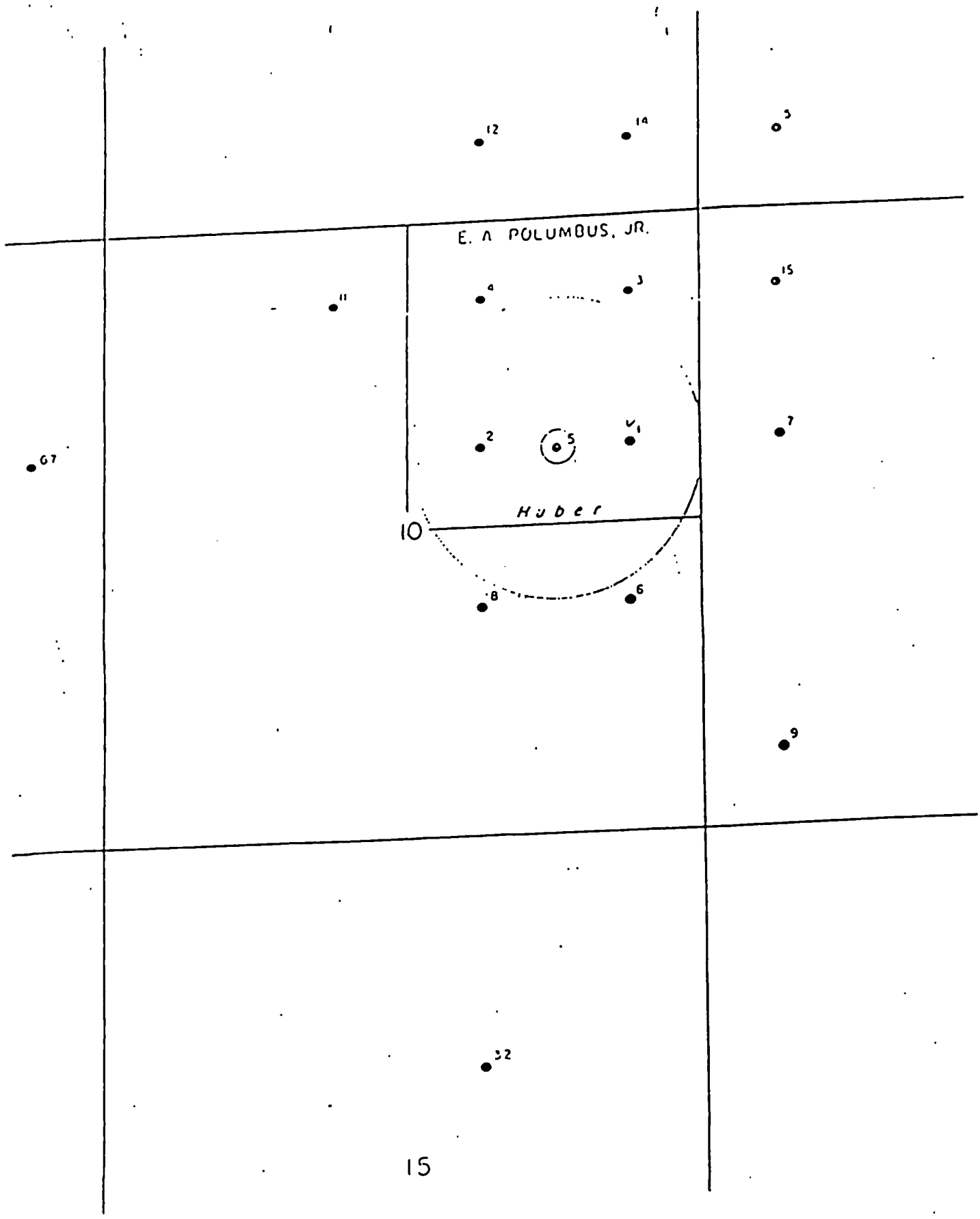
EPU #8-D Permit (1986) (MT2023-00023) says well shall be P&A after inj. ceases for 2 years .... AC all of 1997

Huber #5 Permit issued 8/5/97
Auth to Inj. 12/4/97
No Ann Mont Rpt for 1997

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES
TO:

EPA Form 1300-1 (1-90) REPLACES EPA HQ FORM 5300-6 WHICH MAY BE USED UNTIL SUPPLY IS EXHAUSTED.



EAST POPLAR

SAM 304

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

JUN 22 1999

Ref: 8ENF-T

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Raymond Reede, District Manager
Murphy Exploration & Production Company
P.O. Box 547
Poplar, MT 59255

Re: UNDERGROUND INJECTION CONTROL (UIC)
Notice of Noncompliance
Annual Monitoring Reports
Roosevelt County, MT

Dear Mr. Reede:

Enclosed are Annual Disposal/Injection Well Monitoring Report forms (EPA Form 7520-11) for the wells listed below for the year 1998. These forms should have been submitted by February 15 of this year. Pursuant to permit condition Part II, Section D you are required to submit Annual Monitoring Report forms. Each well requires a separate form, whether the well is active or temporarily abandoned. Please submit the forms within thirty (30) days of receipt of this letter.

Well Name	Permit Number
Mule Creek Allotted #1	MT2791-04292
Well #5-D	MT2021-00021
Well #80-D	MT2026-00026
Well EPU #1-D	MT2022-00022
Well EPU #8-D	MT2023-00023
Well Huber #5	MT2779-04278

Any person who violates any requirement of the Underground Injection Control (UIC) program is subject to enforcement action under Section 1423 of the Safe drinking Water Act. [42 U.S.C. Section 300h-2], et seq.. Enforcement may include civil penalties of up to $27,500 for each day for each violation and require compliance with all provisions of the Safe Drinking Water Act. If the violation is willful, criminal penalties may be prosecuted in accordance with Title 18 of the United States Code.

If you have any questions concerning this letter, you may contact John Carson at (303) 312-6203. Also, please direct all correspondence to the attention of John Carson at Mail Code 8ENF-T.

Sincerely,

Connally E. Mears

Connally E. Mears, Director
Technical Enforcement Program

Enclosures: EPA Form 7520-11

cc: Deb Madison
Environmental Program Manager
Assiniboine & Sioux Tribes
P.O. Box 1027
Poplar, MT 59255

Spike Bighorn, Chairman
Fort Peck Tribal Executive Board
Assiniboine & Sioux Tribes
P.O. Box 1027
Poplar, MT 59255

Sandra Brooks, Field Manager
Billings Field Office
Bureau of Land Management
810 East Main Street
Billings, MT 59105-3395

MURPHY
EXPLORATION & PRODUCTION COMPANY

131 SOUTH ROBERTSON STREET
P.O. BOX 61780
NEW ORLEANS, LA 70161-1780
(504) 561-2811

August 24, 1995

OVERNIGHT MAIL

REF: 8WM-DW

U.S. E.P.A., Region VIII
999 18th Street - Suite 500
Denver, Colorado 80202-2466

Attn: Mr. Gus Stolz/8WM-DW
303-293-1416

RE: Huber No. 5 SWDW
Permit Application-EPA
East Poplar Field
Roosevelt County, Montana

Dear Mr. Stolz:

Please find enclosed an EPA Form 4 UNDERGROUND INJECTION CONTROL - PERMIT APPLICATION along with required attachments for the conversion of our Huber No. 5 to a saltwater disposal well. Attached to this letter is the listing of all surface owners located within the ¼ mile area of review.

Hopefully the application is correct and complete, but if not, please don't hesitate to give me a call in New Orleans at 504 561-2829. Also, please direct any correspondence about this matter to the undersigned at the above letterhead address.

Yours truly,

Bruce D. MacArthur
Sr. Operations Coordinator

BDM/ebh
Enclosure
cc: Ray Reede
Poplar District Manager

(EPASWDWPermit)

MURPHY EXPLORATION & PRODUCTION CO.
HUBER NO. 5 - SWDW CONVERSION
SURFACE OWNERSHIP REPORT - AREA OF REVIEW
TOWNSHIP 28 NORTH, RANGE 51 EAST OF THE M.P.M.

Section 10: E ½ & E ½ SW ¼

Zimmerman, Inc., A Montana Corp.
903 11th St. SW
Sidney, Montana 59270

Section 10: NW ¼ & W ½ SW ¼

Birdie Lester Sanchez
9916 4th Pl SW
Seattle, Washington 98106

MURPHY
OIL CORPORATION

200 Peach Street (71730)
P O Box 7000
El Dorado AR 71731-7000
(501) 862-6411

September 6, 1995

Certified Mail
Return Receipt Requested

Ms. Daniela Thigpen
8WM-DW-UICI
U.S. EPA Region 8
999 18th Street
Suite 500
Denver, CO 80202-2466

Re: Murphy Exploration & Production Company
Addition of SWD to EPA Surety Bond
Surety: St.Paul Fire & Marine Insurance Company
Bond #400FX8500

Dear Ms. Thigpen:

Enclosed is the executed rider to our existing bond referenced above which adds the Huber No.5 SWD well in East Poplar Field in Roosevelt County, Montana; (NE SW NE of Sec. 10, T28N-R51E).

Also enclosed is a revised "Schedule A" dated 8/21/95 to replace the existing schedule attached to our bond.

Please advise this office if additional information is required.

Sincerely,

Susan Dumas

Susan Dumas
Corp.Insurance Assistant
(for Kevin G. Fitzgerald)

/sd
enc.
cc: Bruce D. MacArthur
Production-Onshore, Sr. Operations Coordinator
Murphy Exploration & Production Company
P.O. Box 61780
New Orleans, LA 70161-1780

Mr. Robert R. Brown, Jr.
United Insurance Agency, Inc.
P. O. Box 1604
El Dorado, AR 71731-1604

FAX 862-9057

SPUR

TLX 53-6210

MURPHY
EXPLORATION &
PRODUCTION
COMPANY

131 SOUTH ROBERTSON STREET
P.O. BOX 61780
NEW ORLEANS, LA 70161-1780
(504) 561-2811

September 11, 1995

RE: 8WM-DW

United States E.P.A., Region VIII
999 18th Street, Suite 500
Denver, CO 80202-2466

Attn: Mr. Gus Stolz/8WM-DW
303-293-1416

Re: **Huber No. 5 SWDW**
UIC Permit Application EPA
Necessary Resources-Surety Bond
East Poplar Field
Roosevelt County, MT

Dear Mr. Stolz:

On August 24th Murphy EXPRO overnighted you an EPA Form 4 UNDERGROUND INJECTION CONTROL-PERMIT APPLICATION to provide for the conversion of our Huber No. 5 to a saltwater disposal well. As stated in our application, we added the Huber No. 5 SWDW to the existing Surety Bond already on file with and approved by the EPA. The Surety Bond (No. 400 FX 8500) is with St. Paul Fire and Marine Insurance Company and has been increased $7500 to cover the plugging of the Huber No. 5.

Although the original rider to the existing bond was sent Certified Mail to Ms Daniela Thigpen of Region VIII, I am sending you the attached copy to go along with the Huber No. 5 SWDW Permit Application previously submitted. Once an EPA Identification Number is available for the well, please advise so I can pass it along to our Insurance Department for inclusion on the "Schedule-A" well listing.

If there are any questions, please give me a call in New Orleans at 504 561-2829. Also, please direct any correspondence about this matter to the undersigned at the above letterhead address.

Yours truly,

Bruce D. MacArthur
Sr. Operations Coordinator

BDM/ebh

cc: Ray Reede
Poplar District Manager

(EPASPCCA.pop)

MURPHY
EXPLORATION & PRODUCTION COMPANY

131 SOUTH ROBERTSON STREET
P.O. BOX 61780
NEW ORLEANS, LA 70161-1780
(504) 561-2811

September 20, 1995

OVERNIGHT MAIL

REF: 8WM-DW

U.S. E.P.A., Region VIII
999 18th Street - Suite 500
Denver, Colorado 80202-2466

Attn: Mr. Emmett R. Schmitz/8WM-DW
UIC Section
303-293-1436

RE: **UNDERGROUND INJECTION CONTROL (UIC)**
UIC Permit Application
MT 2779-04278
Huber No. 5 SWDW
SWNE Sec 10-T28N-R51E
East Poplar Field
Roosevelt County, Montana

Dear Mr. Schmitz:

This is written in response to your letter of September 14 where you indicated that our recent UIC Permit Application to convert the Huber No. 5 to a SWDW was incomplete. Please find attached the following requested information needed to complete your preparation of a Draft Permit:

(1) A complete copy of the 1969 cement bond log ran just after the long string (5½") was set.

(2) A listing (2 pages) of the Huber No. 5 formation tops with depths from the open hole Schlumberger logs (measured from K.B. and subsea). Those listed begin with the Cretaceous Greenhorn at 2338' and end with the Devonian Duperow at 7302'. Also attached is a listing of tops, including the shallow formations, from the E.P.U. No. 1 Well located ±7000' northeast of the Huber No. 5.

(3) Copies of the certified letters sent to the surface owners located within the area of review.

(4) A schematic depicting the current status of the shut-in Huber No. 5 including the former producing formations.

(5) An open hole log (Laterolog with Gamma Ray) from the total depth of 7307' to the 8-5/8" surface casing shoe at 1028'.

Hopefully the above supplied information will allow the EPA to deem our Application both administratively and technically complete. However, if there are further questions about this matter, please give me a call in New Orleans at 504 561-2829. Also, please direct any correspondence about this matter to the undersigned at the above letterhead address.

Yours truly,

Bruce D. MacArthur
Sr. Operations Coordinator

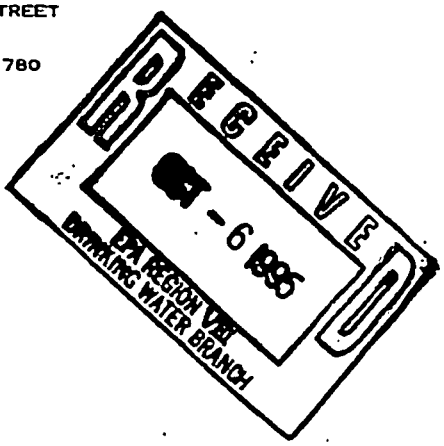
BDM/ebh
Enclosures

cc: Ray Reede
Poplar District Manager

(UICPermit.POP)

MURPHY
EXPLORATION & PRODUCTION COMPANY

131 SOUTH ROBERTSON STREET
P.O. BOX 61780
NEW ORLEANS, LA 70161-1780
(504) 561-2811



October 5, 1995

OVERNIGHT MAIL

REF: 8WM-DW

U.S. E.P.A., Region VIII
999 18th Street - Suite 500
Denver, Colorado 80202-2466

Attn: Mr. Emmett R. Schmitz/8WM-DW
UIC Section
303-293-1416

RE: UNDERGROUND INJECTION CONTROL (UIC)
UIC Permit Application
MT 2779-04278
Huber No. 5 SWDW
SW NE SEC 10-T28N-R51E
East Poplar Field
Roosevelt County, Montana

Dear Mr. Schmitz:

You have indicated in your discussions with Murphy EXPRO's Poplar District Manager, Mr. Ray Reede, that we must revise Attachment "Q" (Plugging and Abandonment Plans) to the subject UIC Permit Application. We have made the required changes to Huber No. 5's Plugging and Abandonment Plan (EPA Form 7520-14) and it is attached.

You will note on the attachment, that the estimated cost to plug the well has been increased to $15,000. Murphy EXPRO notified St. Paul Fire & Marine Ins. Co. (Surety Bond No. 400 FX 8500) to provide $15,000 to cover the plugging of the Huber No. 5. Once our Insurance Dept. receives the document I'll forward a copy to you to go along with the previously submitted application.

Hopefully our application can now be deemed administratively and technically complete allowing for preparation of a Draft UIC Permit. But if not or if there are further questions, please give me a call in New Orleans at 504 561-2829.

Yours truly,

Bruce D. MacArthur
Sr. Operations Coordinator

BDM/ebh
Attachment

cc: Ray Reede
Poplar District Manager

(EPAUICPermitAppl)

MURPHY
EXPLORATION & PRODUCTION COMPANY

131 SOUTH ROBERTSON STREET (70112)
P.O. BOX 61780
NEW ORLEANS, LA 70161-1780
(504) 561-2811
FAX (504) 561-2837

TO: RAY
F.Y.I. - VIA FAX
SWC ___
WELL FILE

November 26, 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

U. S. Environmental Protection Agency
UIC Implementation Section, 8P2-W-GW
999 18th Street, Suite 500
Denver, Colorado 80202-2466

Attn: Mr. Emmett R. Schmitz
(303) 312-6174

Re: UNDERGROUND INJECTION CONTROL (UIC)
Final Permit: Huber No. 5 SWD
EPA Permit No. MT2779-04278
East Poplar Field
Roosevelt County, Montana

Dear Mr. Schmitz;

Please find enclosed the Completion Report for Brine Disposal, the witnessed Mechanical Integrity Test (MIT) and the Radioactive Tracer Survey (RTS) for the subject well. The Huber #5 SWD passed the MIT during Test #1 and RTS reveals there is no upward migration of injected fluids above the top Mission Canyon perforation located at 6185'.

If there are any questions or if anything further is needed prior to commencing injection, please give me a call in New Orleans at (504) 561-2829.

Yours truly,

Bruce D. MacArthur
Sr. Operations Coordinator

cc: Ray Reede
MEPCO Poplar Office

rm Approved. OMB No. 2040-0042. Expires 9-30-86

Form 4 UIC

EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

UNDERGROUND INJECTION CONTROL PERMIT APPLICATION

(Collected under the authority of the Safe Drinking Water Act, Sections 1421, 1422, 40 CFR 144)

I. EPA ID NUMBER

		T/A	C
U			

READ ATTACHED INSTRUCTIONS BEFORE STARTING
FOR OFFICIAL USE ONLY

Application approved mo	day	year	Date Received mo	day	year	Permit/Well Number	Comments

II. FACILITY NAME AND ADDRESS

Facility Name: Huber No. 5 SWDW

Street Address: P. O. Box 547

City: Poplar | State: MT | ZIP Code: 59255

III. OWNER/OPERATOR AND ADDRESS

Owner/Operator Name: Murphy Exploration & Prod. Co.

Street Address: 131 South Robertson Street

City: New Orleans | State: LA | ZIP Code: 70161

IV. OWNERSHIP STATUS *(Mark 'x')*

☐ A. Federal ☐ B. State ☒ C. Private

☐ D. Public ☐ E. Other *(Explain)*

V. SIC CODES

VI. WELL STATUS *(Mark 'x')*

☐ A. Operating | Date Started mo | day | year

☒ B. Modification/Conversion ☒ C. Proposed

VII. TYPE OF PERMIT REQUESTED *(Mark 'x' and specify if required)*

☒ A. Individual ☐ B. Area

Number of Existing wells: 0

Number of Proposed wells: 1

Name(s) of field(s) or project(s): East Poplar Field

VIII. CLASS AND TYPE OF WELL *(see reverse)*

A. Class(es) *(enter code(s))*	B. Type(s) *(enter code(s))*	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
II	D		

IX. LOCATION OF WELL(S) OR APPROXIMATE CENTER OF FIELD OR PROJECT

C	A. Latitude Deg	Min	Sec	B. Longitude Deg	Min	Sec	Township and Range Twsp	Range	Sec	¼ Sec	Feet from	Line	Feet from	Line
!							28N	51E	10	NE	1980	N	1420	E

X. INDIAN LANDS *(Mark 'x')*

☒ Yes ☐ No

XI. ATTACHMENTS

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

FOR CLASSES I, II, III (and other classes) complete and submit on separate sheet(s) Attachments A — U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application:

XII. CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title *(Type or Print)*	B. Phone No. *(Area Code and No.)*
Sidney W. Campbell, Manager - Onshore Production	(504) 561-2594
C. Signature: Sidney W. Campbell	D. Date Signed: August 23, 1995

MURPHY EXPLORATION & PRODUCTION CO.
PERMIT APPLICATION - E.P.A.
HUBER #5 SWDW
EAST POPLAR FIELD
ROOSEVELT COUNTY, MONTANA

A. AREA OF REVIEW METHOD:
The area of review is requested to be a fixed radius of one quarter mile around the Huber No. 5 located in the SW/4, NE/4, Section 10, T28N, R51E Roosevelt Co., MT.

B. MAPS OF WELLS AND AREA:
Attached as Attachment B-1 is a copy of a topographic map identifying the well. Also, attached as Attachments B-2 and B-3 are two field maps showing the location of the well. All pertinent surface features are shown on the three maps.

C. CORRECTIVE ACTION PLAN AND WELL DATA:
Listed below are the oil wells in the area of review with description of the requested information.

Well	Huber 1	Huber 2
Well Type	Oil	Oil
Construction	Attachment C-1	Attachment C-2
Date Drilled	Spud: 5/29/52	Spud: 5/23/52
Location	SE/4 NE/4 Sec. 10 T28N, R51E Roosevelt Co., MT	SW/4 NE/4 Sec. 10 T28N, R51E Roosevelt Co., MT
Depth	5776'	5782'

SEE ATTACHMENTS C-1 & C-2 FOR WELL SCHEMATICS SHOWING OFFSET WELL COMPLETIONS. IT IS IMPORTANT TO NOTE THAT WE PLAN TO INJECT DEEPER THAN THE T.D. OF ALL WELLS WITHIN THE ¼ MILE RADIUS. THEREFORE, NO CORRECTIVE ACTION IS REQUIRED ON ANY WELL IN THE AREA OF REVIEW.

E. NAME AND DEPTH OF USDW'S:
The only USDW identified by Murphy EXPRO is a Tertiary age formation whose base is ±150' from the surface. The competent Bear paw shales below its base are considered a confining zone.

To further protect USDW's there is 8-5/8" surface casing set to 1028', which is through all fresh water intervals. The surface casing was cemented with 575 sacks of regular cement (3% Calcium Chloride and ¼ sx Flo Seal); during the job full returns and clean cement was seen at the surface.

MURPHY EXPLORATION & PRODUCTION CO.
HUBER #5 SWDW - CONVERSION
(CONTINUED)

G. GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES:
Our injection intervals will be the Mission Canyon 6185-87 and 6421-23 and the Nisku 7242-64. The injection intervals are brownish-gray fractured porous and permeable limestone and dolomite. There are numerous confining shales between the "deep" Mission Canyon and the base of the USDW. Also, the top of cement (4740') as indicated by the Bond Log (see ATTACHMENT G - Log excerpt) is well above the Mission Canyon and Nisku disposal intervals. The fracture pressure is assumed to be ± 4550# at Mission Canyon depth of 6185'.

The Mission Canyon and Nisku formations have a total dissolved solids (TDS) concentration greater than 10,000 mg/l and they therefore do not qualify as a USDW.

H. OPERATING DATA:
(1) Avg daily rate - 6000 BWPD/Max daily rate 8500 BWPD
(2) Avg inj press - 1000 PSIG/Max inj press 1590 PSIG
(3) Annulus fluid - water entrained with corrosion inhibiter
(4) The source of the injection fluid is the produced saltwater from the East Poplar Field. Its physical and chemical characteristics are per the Attachment H-1. Note that the water currently being disposed of in EPU #8-D will be transferred to the Huber #5 SWDW once our permit is approved. The produced fluids are from the Madison Limestone and Heath Formation, both of Mississippian age.

J. STIMULATION PROGRAM:
The injection intervals may, if necessary, be stimulated using HCL acid.

K. INJECTION PROCEDURES:
Total well fluids enter the free-water-knock-out located at EPU SWD Station No. 4. The water is separated at the FWKO and flows to the 400 bbl saltwater storage tank. The water is then transferred and injected, based on a level controller, by one of two available pumps into the Huber No. 5 well.

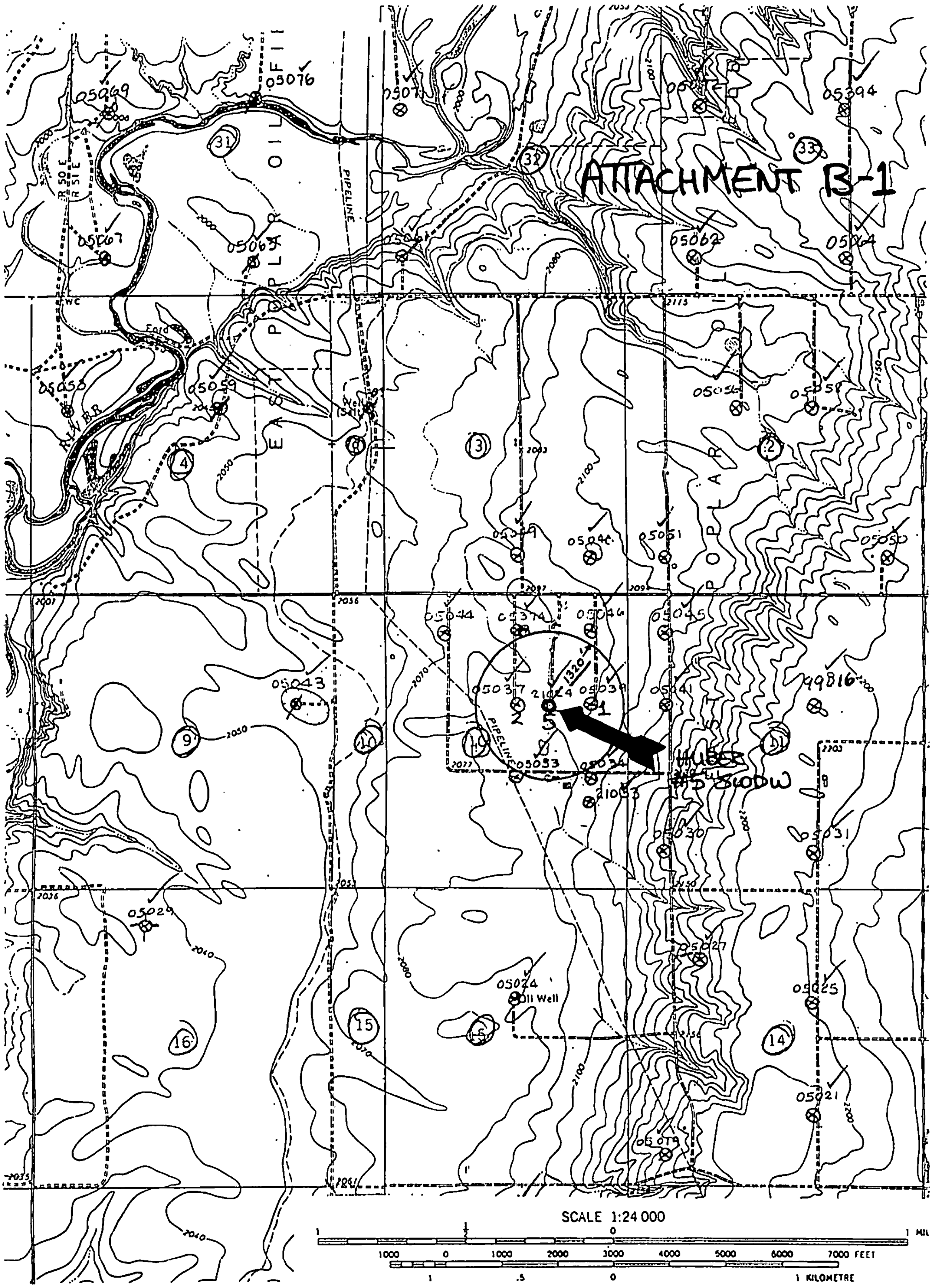
M. CONSTRUCTION DETAILS:
See attachments M-1 and M-2 for surface and subsurface construction details of our SWD system and disposal well respectively.

MURPHY EXPLORATION & PRODUCTION CO.
HUBER #5 SWDW - CONVERSION
(CONTINUED)

P. MONITORING PROGRAM:
The tree or the injection line will be tapped to provide for injection pressure monitoring. In order to allow the monitoring of annular pressure, the tubing/casing (2-7/8" X 5½") annulus will be tapped for back side pressure monitoring. Also, a flow meter will be installed to measure volumes of the fluid injected.

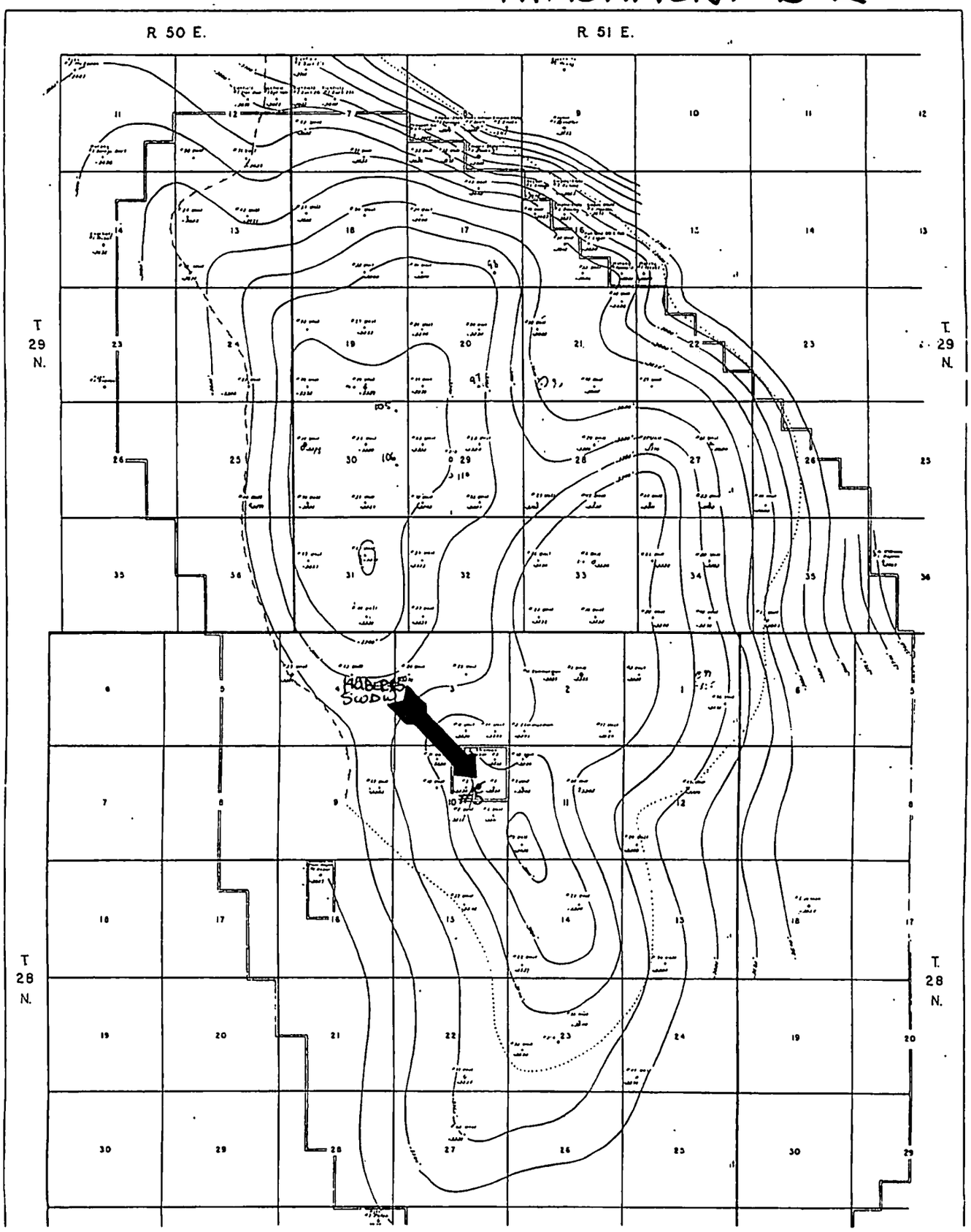
Q. PLUGGING AND ABANDONMENT PLAN:
The P&A information is submitted on EPA Form 7520-14 as attachment Q.

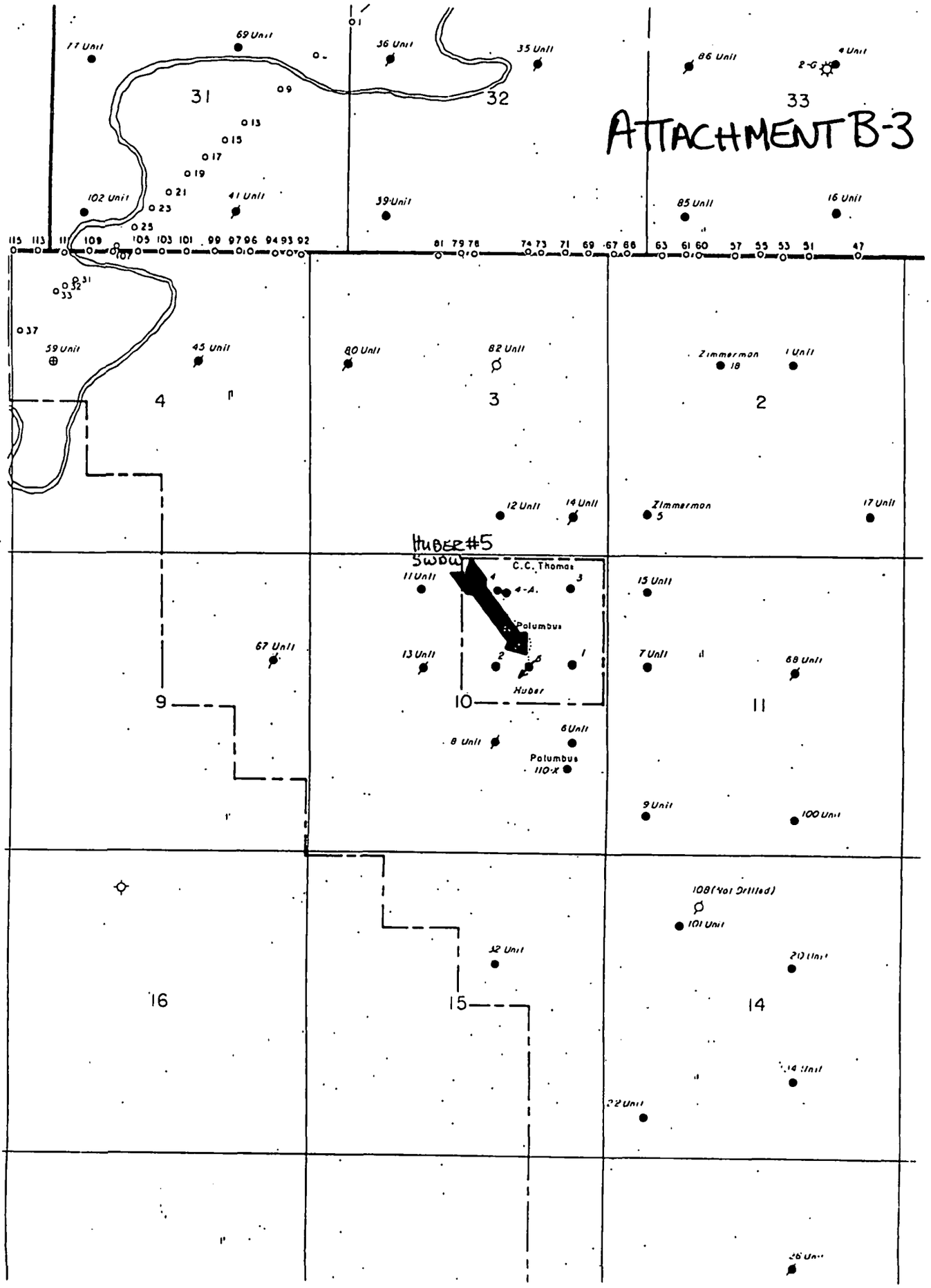
R. NECESSARY RESOURCES:
Murphy EXPRO is adding the Huber No. 5 SWDW to the existing Surety Bond already on file with and approved by the EPA. The Surety Bond (No. 400 FX 8500) is with St. Paul Fire & Marine Ins. Co. and is being increased $7,500 to cover the plugging of the Huber No. 5.



ATTACHMENT B-1
HUBER #5 SWDW
1320
PIPELINE
Oil Well
Ford
RIVER
SCALE 1:24 000
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETRE

ATTACHMENT B-2




ATTACHMENT B-3
HUBER #5
SWDW
31
32
33
4
3
2
9
10
11
16
15
14
C.C. Thomas
4-A
Columbus
Huber
Zimmerman
108 (Not Drilled)
69 Unit
77 Unit
36 Unit
35 Unit
86 Unit
4 Unit
2-G
102 Unit
41 Unit
39 Unit
85 Unit
16 Unit
59 Unit
45 Unit
80 Unit
82 Unit
18
1 Unit
12 Unit
14 Unit
5
17 Unit
11 Unit
15 Unit
67 Unit
13 Unit
7 Unit
68 Unit
8 Unit
6 Unit
110-X
9 Unit
100 Unit
101 Unit
42 Unit
210 Unit
114 Unit
22 Unit
26 Unit

ATTACHMENT C-1 W/P WPB III (3/16/82

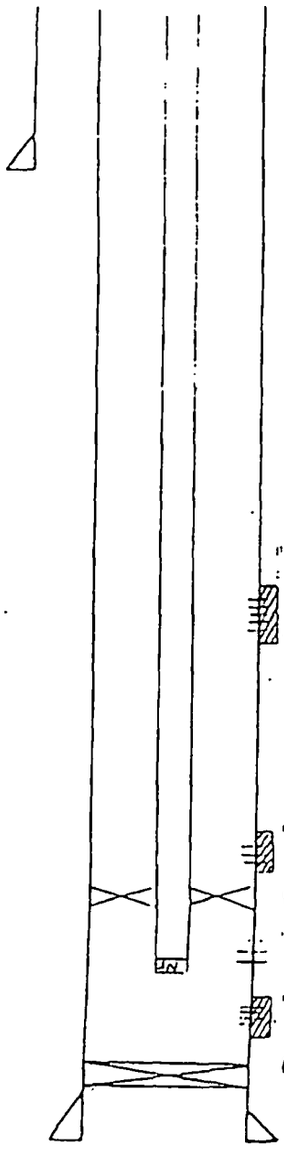
LEASE Huber WELL NO. #1

LOCATION C E NE FIELD East Poplar

COUNTY Roosevelt STATE Montana

TD 5776' KB 2104'

DF _____ GL _____



10 3/4" SURF. CSG.
@ 1010' WITH
500 SACKS.
178 jts. 2 7/8" J-55 tbg
88 - 7/8" rods w/ 2" pump
131 - 3/4" rods

Heath (4858-82') Sqzd w/ 100 sxs (2/75)

TOC @ 4970'

Charles "A" (5500-20') Sqzd w/ 100 sxs (2/75)

Baker A/C @ 5580'

"B-1" (5608-16') Reperfed (6/77)

"B-2" (5626-38') Sqzd off.

Baker Model "K" retainer @ 5650'

7 " CSG. @ 5753'
W/ 500 SXS.

COMPLETION INTERVALS:

_____

_____

_____

_____

_____

WELL HISTORY:

Well completed May 5, 1952 in Madison (5608-17'), (5626-38') & (5500-20').
Sqzd Charles "A" & Heath (2/75)
Sqzd "B-1" & "B-2" (6/77) & reperfed "B-1" (5608-16')

REMARKS: 7" csg detail
55 jts. 23#/ft 2408'
78 jts. 20#/ft 3350'

WELL COMPLETION SKETCHES ATTACHMENT C-2 WPB III (3/6/86)

WELL: HUBER #2 | FIELD: East Poplar | DATE:

☐ PRESENT COMPLETION ☐ SUGGESTED COMPLETION ☐ ORIGINAL COMPLETION | WELL CLASS:

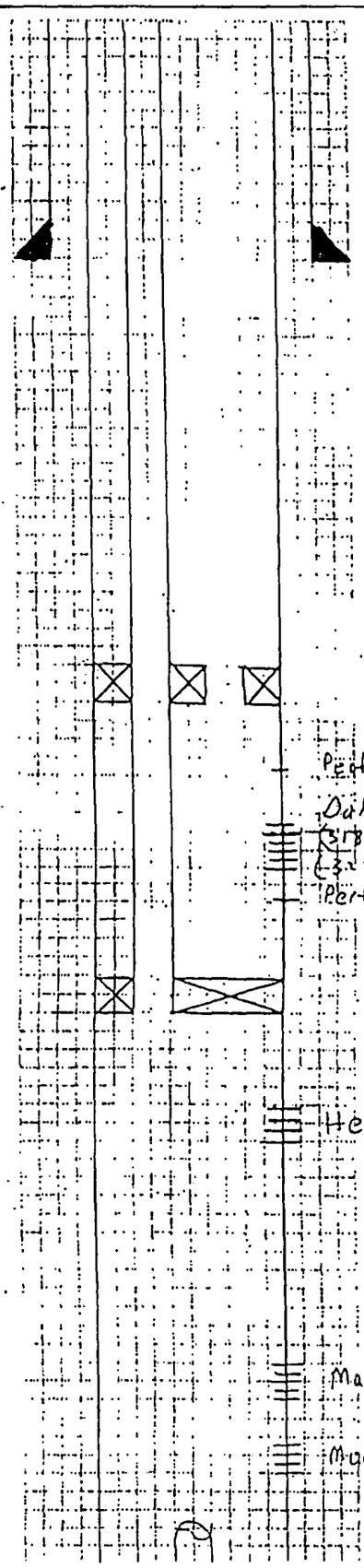
PERMANENT WELL BORE DATA

SW NW Sec. 10, T28N-R51E
East Poplar Field
Roosevelt County, Montana
TD 5782'
KB 2089'
GL 2078'

Dakota Treatment:
* Fraced w/ 505 BBL w-F10 + 10,000 # 20/40 sand
* Initial injection 1400 BwPD @ 770 #
* (5/8/72) Acidized w/ 7000 gal 7½% Injection after treatment 2650 BwPD @ 960 #

* No record of upper packer but states two strings were used at one time (both 2" string one production and the other injection)
* Pulled 2" Dakota string in 1973 after converting E.P.U #110 XD to WDW in 1973

* No records of



DATA ON THIS COMPLETION

10 3/4" @ 1006' w/ 450 SX

Perfd 8 holes @ 3150 + Sqzd w/ 170 SXS.
Dakota (5/72)
(3185 - 3230')
(3250 - 3325')
Perfd 4 holes @ 3350' + Sqzd w/ 30 SXS.

Baker Model @ 3410'

Heath (4884 - 89') (6/14/69)

Completed Madison (7/52)

Madison "B-1" (5618-76')

Madison "B-2" (5635-52')

Baker Model "D" @ 5660'

ATTACHMENT: H - 1 (½)

Downhole Water Analysis 12/29/1994
Copyright 1991,1993, Nalco Chemical Company DON S. WHISONANT

CLIENT NAME : MURPHY EXPL. & PROD. CO.
CLIENT LOCATION: POPLAR MT

Well Number : EPU 8D
Water Source : 12-13-94

NOTE THAT ONCE PERMIT IS APPROVED WATER WILL BE TRANSFERRED FROM E.P.U. 8-D TO HUBER #5 SWDW

DISSOLVED SOLIDS

Cations		mg/l	meq/l		mg/l
Sodium	Na+	43442.8	1888.8	as NaCL	0.0
Calcium	Ca++	3003.4	149.9	as CaCO3	7500.0
Magnesium	Mg++	801.4	65.9	as CaCO3	3300.0
Barium	Ba++	0.0	0.0	as CaCO3	0.0
Strontium	Sr++	0.0	0.0	as CaCO3	0.0
Total Cations		47247.5	2104.6		

Anions		mg/l	meq/l		mg/l
Chloride	Cl-	74008.3	2087.5	as NaCL	122000.0
Sulfate	SO4=	534.2	11.1	as Na2SO4	790.0
Carbonate	CO3=	0.0	0.0	as CaCO3	0.0
Bicarb.	HCO3-	365.7	6.0	as CaCO3	300.0
Total Anions		74908.2	2104.6		

Total Solids 122155.7

METALS

Total Iron,Fe	2.5	as Fe	2.5
Acid to Phen.CO2	77.0	as CaCO3	175.0

OTHER PROPERTIES

pH	5.9
Specific Gravity	1.1
Turbidity jtu	0.0
Oxygen, as O2 ppm	0.0
Sulfide as H2S ppm	0.0

2/2

ATTACHMENT H-1

Downhole Water Analysis 12/29/1994
Copyright 1991,1993, Nalco Chemical Company DON S. WHISONANT

CLIENT NAME : MURPHY EXPL. & PROD. CO.
CLIENT LOCATION: POPLAR MT

Well Number : EPU 8D
Water Source : 12-13-94

Temperature (Deg. F)	Calcium Carbonate	Calcium Sulfate	Barium Sulfate	Strontium Sulfate
60.0	-1.02	-38.11	NA	NA
80.0	-0.82	-38.39	NA	NA
100.0	-0.58	-38.48	NA	NA
120.0	-0.30	-37.98	NA	NA
140.0	0.02	-37.33	NA	NA
160.0	0.39	-36.24	NA	NA
180.0	0.80	-35.34	NA	NA
200.0	1.25	NA	NA	NA
220.0	NA	NA	NA	NA
240.0	NA	NA	NA	NA
260.0	NA	NA	NA	NA
280.0	NA	NA	NA	NA
300.0	NA	NA	NA	NA
320.0	NA	NA	NA	NA

Positive values indicate scaling tendencies

ATTACHMENT "G" (1/2)

WB1

PERF-O-LOG

SONIC CEMENT BOND LOG

COMPANY E. A. POLUMBUS JR. & LADD PETROLEUM CORPORATION

MURPHY EXPRO's SWDW CONVERSION

WELL HUBER NO. 5

FIELD EAST POPLAR

COUNTY ROOSEVELT STATE MONTANA

Location: SW NE 1980' FNL 1420' FEL

Sec. 10 Twp. 28N Rge. 51E

Other Services: GR-NEUT.

Permanent Datum: G. L. Elev. 2080

Log measured from K.B. 12 ft. above perm. datum

Drilling measured from K.B.

Elev.: K.B. 2092 D.F. G.L. 2080

Date	1-3-69
Run No.	ONE
Type Log	CEMENT BOND
Depth—Driller	7272
Depth—Logger	7272
Bottom logged interval	7268
Top logged interval	4740 — TOP OF CEMENT (SEE PAGE 2)
Type fluid in hole	SALT WATER
Salinity, PPM Cl.	
Density	
Level	
Max. rec. temp., deg. F.	
Operating rig time	2 HOURS
Recorded by	THOMPSON
Witnessed by	LOW

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
1				8 5/8		0	1028
	7 7/8	1028	7306	5 1/2	17	0	7305

Fold Here

This Heading and Log Conforms to API RP 33

EQUIPMENT DATA

	Run No.	Log Type	Tool Model No.	Diameter	Detector Model No.	Type	Length	Source Model No.	Serial No.	Spacing	Type	Strength
Neutron	ONE	100	3 1/4									

	Tool Model No.	Detector Model No.	Type	Length	Distance to N. Source	Holst Truck No.	Instrument Truck No.	Tool Serial No.
General						SU-1		100

LOGGING DATA

	Run No.	Depths From	Depths To	Speed Ft/Min	T.C. Sec.	Sens. Settings	Zero Div. L or R	API G.R. Units per Log Div.
General								
CBL	1	7268	4710	60				

	Run No.	T.C. Sec.	Sens. Settings	Zero Div. L or R	API N. Units per Log Div.
Neutron					

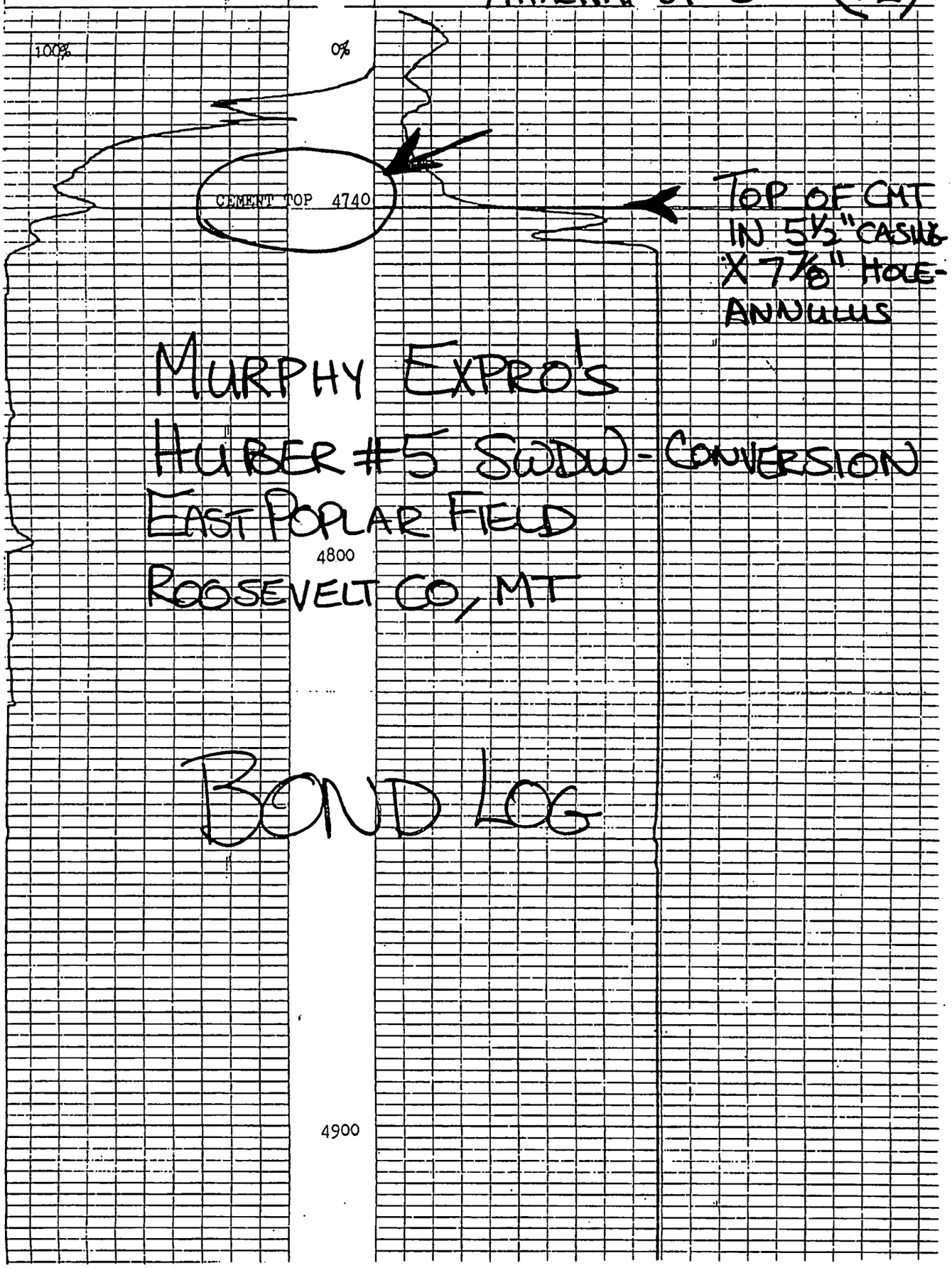
Reference Literature:

Remarks:

HUBER #5 BOND LOG

AMPLITUDE | DEPTHS | DELTA TIME

ATTACHMENT "G" (3/2)

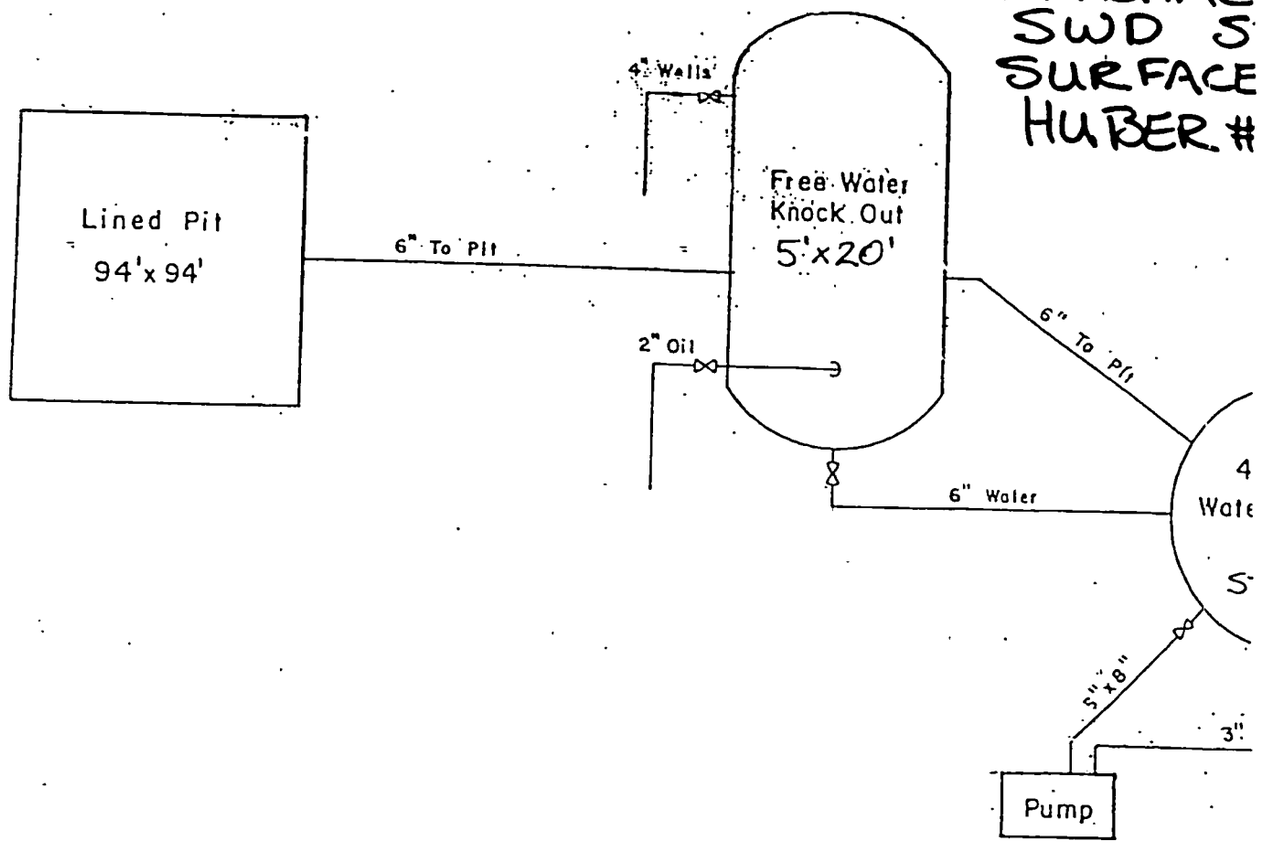


TOP OF CMT IN 5½" CASING X 7⅞" HOLE - ANNULUS

MURPHY EXPRO'S HUBER #5 SWDW - CONVERSION
EAST POPLAR FIELD
ROOSEVELT CO, MT

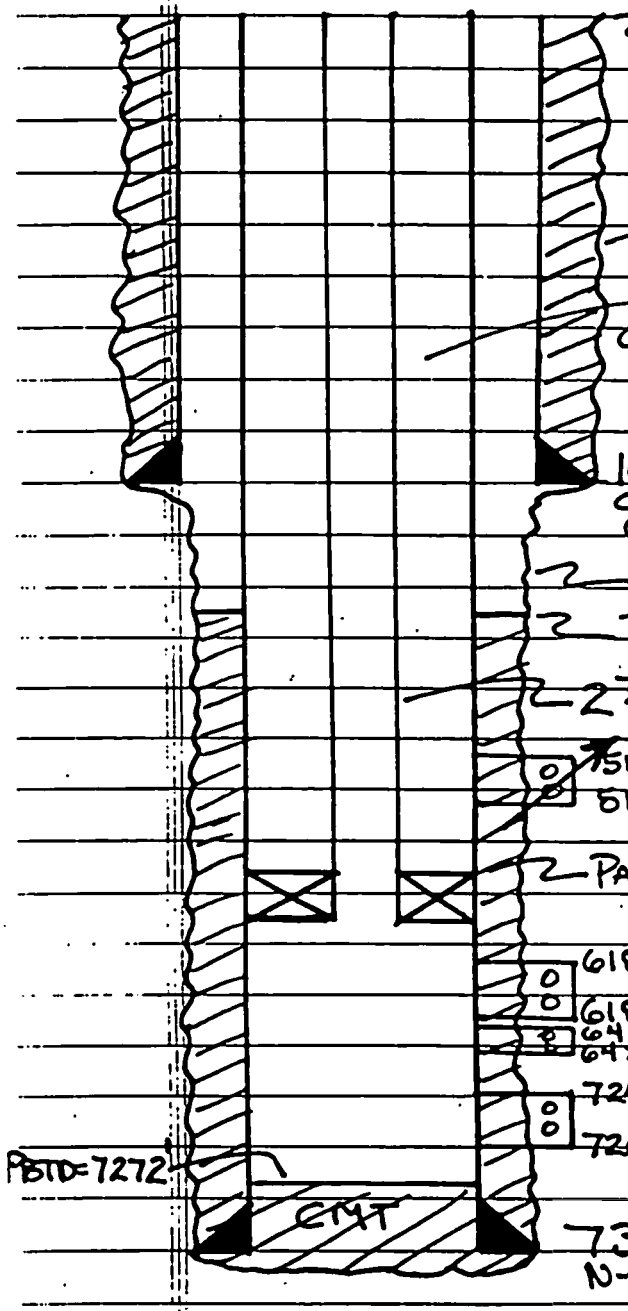
BOND LOG

ATTACHME
SWD S
SURFACE
HUBER #



MURP
East
SWD

ATTACHMENT M-2
MURPHY EXPRO
SWD SYSTEM
HUBER #5 SWDW
SUBSURFACE CONSTRUCTION



WELL WAS ORIGINALLY COMPLETED DURING JAN 1969 IN THE NISKU FORMATION

HUBER #5 SWDW
PROPOSED COMPLETION
EAST POPLAR FIELD
ROOSEVELT CO, MT

BDM 8/95

ATTACHMENT "Q"

Form approved. OMB No. 2040-0042. Approval expires 9-30-86

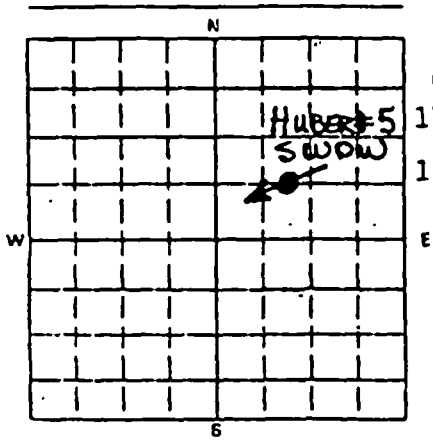
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

ATTACHMENT "Q"

EPA PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY	NAME AND ADDRESS OF OWNER/OPERATOR
Huber No. 5 SWDW P. O. Box 547 Poplar, MT 59255	Murphy Exploration & Production Co. 131 South Robertson St. New Orleans, LA 70112

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES Sec 10



STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT 2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) ____ Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

TYPE OF AUTHORIZATION
- [X] Individual Permit
- [ ] Area Permit
- [ ] Rule
- Number of Wells 1
- Lease Name Huber

WELL ACTIVITY
- [ ] CLASS I
- [X] CLASS II
  - [X] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] CLASS III
- Well Number 5 SWDW

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8-5/8"	24#		1028'	12¼"
5 ½"	14 & 17#		7307	7-7/8"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [X] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

RECEIVED
OCT - 6 1995
EPA REGION VIII
DRINKING WATER BRANCH

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)	5 ½"	5 ½"	5 ½"	5 ½"	5 ½"**	annulus	
Depth to Bottom of Tubing or Drill Pipe (ft.)	7264	5225	1075*	56	56		
Sacks of Cement To Be Used (each plug)	152	12	35	7	9		
Slurry Volume To Be Pumped (cu. ft.)	166	14	35	8	10		
Calculated Top of Plug (ft.)	6135	5135	975	6	6		
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)	H	H	H	H	H		

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (If any)

From	To	From	To
6185'	6187'		
7242'	7264'		

Estimated Cost to Plug Wells
$15,000

* perf 5½" casing at 1075'

** pump cmt down 1" pipe in 5½" annulus

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE (Please type or print)	SIGNATURE	DATE SIGNED
Bruce D. MacArthur Sr. Operations Coordinator	Bruce D MacArthur	October 5, 1995

EPA Form 7520-14 (3-84)

H&H WELL SERVICE, INC.
P. O. BOX 1244 POPLAR, MONTANA 59255
768-5290

October 4, 1995

Murphy Exploration & Production Company
P.O. Box 547
Poplar, MT 59255

RE: Huber 5 P & A

Dear Ray:

We would like to submit the following bid to plug and abandon the Huber No. 5 for a bid price of $14,550.00. H & H Well Service will provide rig and crew, mud pump and other equipment and material necessary to plug the well.

In the event of the casing being collapsed or being unable to set the bridge plug or tools in the hole, any excess rig time will be billed at our regular rate.

Sincerely,

Allen Hagadone
Vice President

UPDIKE/GIBSON WELL SERVICE COMPANY

R.R. 3 • BOX 253 • WILLISTON, ND 58801
TELEPHONE (701) 672-2863
DICKINSON (701) 572-2863
SIDNEY (406) 482-1018

October 2, 1995

Murphy Exploration & Production Company
P.O. Box 547
Poplar, MT 59255
ATTN: Mr. Ray Reede

RE: Huber 5

Dear Mr. Reede;

In response to your request for a turnkey bid to plug and abandon the above mentioned wellbore,. Updike/Gibson Well Service would like to make the following proposal:

Updike/Gibson Well Service will provide all men, materials, and equipment to perform this service in accordance with the procedure supplied to us by your office for the sum of $14,650.00. It should be understood that any additional tubing that may be required will be the responsibility of Murphy Exploration & Production to supply.

In the event of unforeseen problems, (e.g., stuck tubing or rods, etc.), or procedural changes requested by yourselves, the Montana Board of Oil & Gas Conservation, or the EPA, we will charge accordingly from our current rate schedule. These prices do not include any clean up or restoration of the location.

Thank you very much for the opportunity to submit this bid.

Sincerely,

Kevin Groethe

Kevin Groethe
Cementer/Casing Recovery Supervisor

The St Paul

STIPULATION
(Penalty Increase or Decrease)

ATTACHED TO AND FORMING PART OF BOND NO.	EFFECTIVE DATE OF BOND	EFFECTIVE DATE OF THIS STIPULATION	AMOUNT OF INCREASE ~~DECREASE~~	NEW PENALTY AMOUNT
400FX8500	03-15-93	08-21-95	$ 7,500.00	$ 75,000.00

ISSUED ON BEHALF OF	ISSUED IN FAVOR OF
Murphy Exploration & Production Company	U.S. Environmental Protection Agency

We, St. Paul Fire and Marine Insurance Company, Surety on the above Bond, hereby stipulate and agree that from and after the effective date of this Stipulation the penalty of said Bond shall be

[X] increased
[ ] ~~decreased~~ } *Check One* by the amount stated above but the total liability of St. Paul Fire and Marine Insurance Company

under said Bond and this Stipulation shall not exceed the sum of Seventy-five thousand and no/100---------

---

dollars ($ 75,000.00).

St. Paul Fire and Marine Insurance Company

Robert R. Brown, Jr.

Robert R. Brown, Jr./ Agent and *Attorney-in-Fact*

REQUEST FOR STIPULATION (INCREASE)

We Murphy Exploration & Production Company, Principal hereby request St. Paul Fire and Marine Insurance Company to execute the foregoing Stipulation.

Murphy Exploration & Production Company

By Odie F. Vaughan

Odie F. Vaughan, Treasurer

CONSENT TO STIPULATION (DECREASE)

We ....., Obligee, hereby consent to the foregoing Stipulation decreasing the Bond amount.

.....

By .....

11076 Rev. 11-70 Printed in U.S.A.

The St Paul
Surety

ST. PAUL FIRE AND MARINE INSURANCE COMPANY
Washington Street, St. Paul, Minnesota 55

CERTIFICATE OF AUTHORITY NO.

CERTIFIED COPY NO.

For verification of the authenticity of this Power of Attorney, you may telephone toll free 1-800-421-3880 and ask for the Power of Attorney Clerk. Please refer to the Certificate of Authority No. and the named individual(s).

1795911

F-12655

GENERAL POWER OF ATTORNEY - CERTIFIED COPY
(Original on File at Home Office of Company. See Certification.)

KNOW ALL MEN BY THESE PRESENTS: That St. Paul Fire and Marine Insurance Company, a corporation organized and existing under the laws of the State of Minnesota, having its principal office in the City of St. Paul, Minnesota, does hereby constitute and appoint:

Robert R. Brown, Jr., Gary J. Hegi, Gaylord Solomon, R. Richard Brown, III, Christopher B. Hegi, individually, El Dorado, Arkansas

its true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise.

NOT TO EXCEED IN PENALTY THE SUM OF TEN MILLION DOLLARS ($10,000,000) EACH

and the execution of all such instrument(s) in pursuance of these presents, shall be as binding upon said St. Paul Fire and Marine Insurance Company, as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at its principal office.

This Power of Attorney is executed, and may be certified to and may be revoked, pursuant to and by authority of Article V, Section 6(C), of the By-Laws adopted by the Shareholders of ST. PAUL FIRE AND MARINE INSURANCE COMPANY at a meeting called and held on the 28th day of April, 1978, of which the following is a true transcript of said Section 6 (C):

"The President or any Vice President, Assistant Vice President, Secretary or Service Center General Manager shall have power and authority
(1) To appoint Attorneys-in-fact, and to authorize them to execute on behalf of the Company, and attach the Seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof, and
(2) To appoint special Attorneys-in-fact, who are hereby authorized to certify to copies of any power-of-attorney issued in pursuance of this section and/or any of the By-Laws of the Company, and
(3) To remove, at any time, any such Attorney-in-fact or Special Attorney-in-fact and revoke the authority given him."

Further, this Power of Attorney is signed and sealed by facsimile pursuant to resolution of the Board of Directors of said Company adopted at a meeting duly called and held on the 5th day of May, 1959, of which the following is a true excerpt:

"Now therefore the signatures of such officers and the seal of the Company may be affixed to any such power of attorney or any certificate relating thereto by facsimile, and any such power of attorney or certificate bearing such facsimile signatures or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by facsimile signatures and facsimile seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached."

IN TESTIMONY WHEREOF, St. Paul Fire and Marine Insurance Company has caused this instrument to be signed and its corporate seal to be affixed by its authorized officer, this 30th day of November, A.D. 1990.

ST. PAUL FIRE AND MARINE INSURANCE COMPANY

STATE OF NEW JERSEY }
County of Sommerset } ss.

MICHAEL B. KEEGAN, Secretary

On this 8th day of September, 19 94, before me came the individual who executed the preceding instrument, to me personally known, and, being by me duly sworn, said that he/she is the therein described and authorized officer of St. Paul Fire and Marine Insurance Company; that the seal affixed to said instrument is the Corporate Seal of said Company; that the said Corporate Seal and his/her signature were duly affixed by order of the Board of Directors of said Company.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal, at the township of Bedminster, New Jersey, the day and year first above written.

LINDA SMETHERS, Notary Public, Middlesex, NJ
My Commission Expires December 16, 1996

CERTIFICATION

I, the undersigned officer of St. Paul Fire and Marine Insurance Company, do hereby certify that I have compared the foregoing copy of the Power of Attorney and affidavit, and the copy of the Section of the By-Laws of said Company as set forth in said Power of Attorney, with the ORIGINALS ON FILE IN THE HOME OFFICE OF SAID COMPANY, and that the same are correct transcripts thereof, and of the whole of the said originals, and that the said Power of Attorney has not been revoked and is now in full force and effect.

IN TESTIMONY WHEREOF, I have hereunto set my hand this

21st day of August, 1995.

MICHAEL W. ANDERSON, Asst. Secretary

Only a certified copy of Power of Attorney bearing the Certificate of Authority No. printed in red on the upper right corner is binding. Photocopies, carbon copies or other reproductions of this document are invalid and not binding upon the Company.

ANY INSTRUMENT ISSUED IN EXCESS OF THE PENALTY AMOUNT STATED ABOVE IS TOTALLY VOID AND WITHOUT ANY VALIDITY.

29550 Rev. 6-94 Printed in U.S.A.

ATTACHMENT "Q" Form A. ed. OMB No. 2040-0042, Approval expires 9-30-8[illegible]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

ATTACHMENT "Q"

EPA

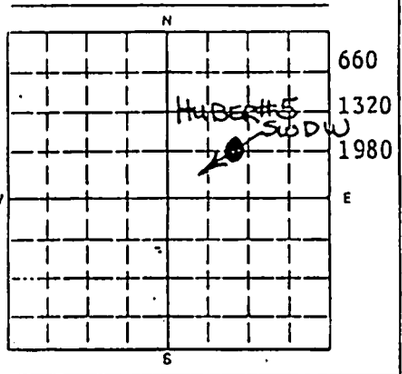
PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY
Huber No. 5 SWDW
P. O. Box 547
Poplar, MT 59255

NAME AND ADDRESS OF OWNER/OPERATOR
Murphy Exploration & Producton Co.
131 South Robertson St.
New Orleans, LA 70112

STATE: MT | COUNTY: Roosevelt | PERMIT NUMBER:

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES Sec 10



SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

TYPE OF AUTHORIZATION
- [x] Individual Permit
- [ ] Area Permit
- [ ] Rule

Number of Wells 1

WELL ACTIVITY
- [ ] CLASS I
- [x] CLASS II
  - [x] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] CLASS III

Lease Name Huber | Well Number 5 SWDW

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8-5/8"	24#		1028'	12 ¼"
5 ½"	14 & 17#		7307	7-7/8"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)	5 ½"	5 ½"	5 ½"	5½"	5½"**	annulus	
Depth to Bottom of Tubing or Drill Pipe (ft.)	7264	5225	1075*	56	56		
Sacks of Cement To Be Used (each plug)	152	12	35	7	9		
Slurry Volume To Be Pumped (cu. ft.)	166	14	35	8	10		
Calculated Top of Plug (ft.)	6135	5135	975	6	6		
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)	H	H	H	H	H		

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (If any)

From	To	From	To
6185'	6187'		
7242'	7264'		

Estimated Cost to Plug Wells
$15,000

* perf 5½" casing at 1075'
** pump cmt down 1" pipe in 5½" annulus

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE (Please type or print)	SIGNATURE	DATE SIGNED
Bruce D. MacArthur Sr. Operations Coordinator	Bruce D MacArthur	Aug 23, 1995

EPA Form 7520-14 (3-84)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

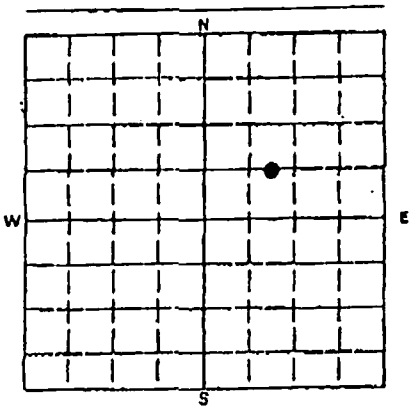
Form Approved
OMB No. 2040-0042
Approval expires 9-30-86

EPA COMPLETION REPORT FOR BRINE DISPOSAL, HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL

NAME AND ADDRESS OF EXISTING PERMITTEE
Murphy Exploration & Prod. Co.
P.O. Box 547
Poplar, Montana 59255-1105

NAME AND ADDRESS OF SURFACE OWNER
Zimmerman, Inc.
903 11th Street Southwest
Sidney, Montana

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
Mt.	Roosevelt	MT2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY
- [X] Brine Disposal
- [ ] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [X] Individual
- [ ] Area

Number of Wells 1

Estimated Fracture Pressure of Injection Zone: 5320#

Anticipated Daily Injection Volume (Bbls)		Injection Interval	
Average: 6000	Maximum: 8500	Feet: 6185'	to Feet: 7276'
Anticipated Daily Injection Pressure (PSI)		**Depth to Bottom of Lowermost Freshwater Formation (Feet)**	
Average: 1000	Maximum: 1590	150'	

Type of Injection Fluid (Check the appropriate block(s))
- [X] Salt Water
- [ ] Brackish Water
- [ ] Fresh Water
- [ ] Liquid Hydrocarbon
- [ ] Other

Lease Name: Huber
Well Number: 5-D
Name of Injection Zone: Mission Canyon Nisku
Permeability of Injection Zone: 0-100 Millidarcys
Porosity of Injection Zone: 10-15%

Date Drilling Began	Date Well Completed	Date Drilling Completed
11-26-68	2-6-69	12-19-68

CASING AND TUBING / CEMENT / HOLE

OD Size	Wt/Ft — Grade — New or Used	Depth	Sacks	Class	Depth	Bit Diameter
8-5/8"	24# J-55 New	1028	575	G	1028	12-1/4
5-1/2"	17# N-80 New	7307	600	G	7307	7-7/8"
5-1/2"	17# J-55 New	7152				
5-1/2"	14# J-55 New	1932				
5-1/2"	17# N-80 New	319				
2-7/8"	6.5# J-55 Used	6140				

INJECTION ZONE STIMULATION / WIRE LINE LOGS, LIST EACH TYPE

Interval Treated	Materials and Amount Used	Log Types	Logged Intervals
6185-6187		Microlateral Log	4850-7306
6421-6423		Neutron Porosity Log	4800-7300
7240-7250	5000 Gallons 15% HCL	TMD Log	4500-7115
7260-7268		Tracer Survey	5850-7245
7272-7276		Bond Log	4710-7268

Complete Attachments A — E listed on the reverse.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)		DATE SIGNED
BRUCE D. MACARTHUR SR. OPERATIONS COORDINATOR		NOV 26, 1997

EPA Form 7520-10 (2-84)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

DEC 0 4 1997

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN REQUESTED

Mr. Bruce D. MacArthur
Sr. Operations Coordinator
Murphy Exploration & Production Co.
131 South Robertson Street
New Orleans, LA 70112

RE: UNDERGROUND INJECTION CONTROL (UIC)
AUTHORIZATION TO COMMENCE INJECTION
EPA Permit No. MT2779-04278
Huber No. 5 SWD
East Poplar Field
Roosevelt County, Montana

Dear Mr. MacArthur:

The Environmental Protection Agency (EPA) has received all pre-authorization to inject requirements for the Huber No. 5 SWD. The mechanical integrity test (MIT), the Radioactive Tracer Survey, and the EPA Form No. 7520-12 (Well Rework Record) have been reviewed and approved by the EPA. As of the date of this letter, Murphy Exploration & Production Company (Murphy) is authorized to commence injection into the Huber No. 5 SWD.

The EPA cover letter to the Final Permit, of August 5, 1997, states that within sixty (60) days following the authorization to commence injection Murphy will conduct a step-rate test (SRT) to establish an accurate formation-face fracture gradient of the injection interval. In consideration that injection may not stabilize in a sixty (60) day period, the EPA is extending the time requirement for the SRT to six (6) months following authority to commence injection.

STATEMENT OF BASIS

MURPHY EXPLORATION & PRODUCTION COMPANY
HUBER NO 5 SWDW
SW NE (1980' FNL & 1420' FEL) Sec. 10 - T28N - R51E
ROOSEVELT COUNTY, MONTANA
EPA PERMIT NUMBER: MT2779-04278

CONTACTS: Emmett R. Schmitz
U. S. Environmental Protection Agency
UIC Implementation Section, 8P2-W-GW
999 18th Street, Suite 500
Denver, Colorado 80202-2466
Telephone: (303) 312-6174

Jim Boyter
U. S. Environmental Protection Agency
Montana Office
Federal Building, Drawer 10096
301 South Park
Helena, Montana 59626
Telephone: (406) 441-1140 (X233)

DESCRIPTION OF FACILITY AND BACKGROUND INFORMATION:

On August 24, 1995, Murphy Exploration & Production Company (Murphy) made application for an underground injection control Permit for the disposal of produced water from the Mississippian Heath and Madison/Charles Formations (25,000 to 225,000 mg/l total dissolved solids [TDS]), into the deeper Mississippian Mission Canyon and Devonian Nisku Formations (TDS for combined fluids: 122,155 mg/l) in the Huber No. 5 (a former Nisku oil well). The Madison/Charles and Heath formations, East Poplar oil field, will be the source of all disposal water. The Huber No. 5 SWDW will not be a commercial salt water disposal facility.

The Huber No. 5 SWDW will be a replacement for the East Poplar Unit (EPU) No. 8-D (EPA Permit No. MT2023-00023), a Judith River salt water disposal well.

Underground Sources of Drinking Water (USDWs) are defined by the UIC Regulations as aquifers, or portions thereof, which contain less than 10,000 mg/l total dissolved solids (TDS) and which are being, or could be, used as a source of drinking water. The only USDW in Sections 3, 4, and 10 - T28N - R51E [East Poplar Unit (EPU)] has been identified by Murphy, and Dr. Bergantino of the State of Montana, as a shallow Tertiary sand, approximately 150 feet from the surface. Statements of Basis for Final Permit MT2023-00023 (EPU No. 8-D SWD: NW SE Sec. 10 - T28N - R51E), Final Permit MT2026-00026 (EPU 80-D SWD: SW NW Sec. 3 - T28N - R51E), and Final Permit MT2025-00025 (EPU 59-D [P&A]: NE SW NW Sec. 4 - T28N - R51E), and construction details for the subject application, note that this Tertiary sand is behind surface casing that has been cemented to the surface.

FORMATION TOPS AND THICKNESS: LOGS

Huber No 5 SWDW (SW NE Section 10 - T28N - R51E)

Bearpaw Shale	Surface
Judith River (sand)	Behind surface pipe
Heath	4872 - 4973 feet (Oil)
Madison (Charles)	5372 - 5792 feet (Oil)
Mission Canyon	5792 - 6495 feet (Injection)
Lodgepole	6495 - 7104 feet
3-Forks Dol'c Sh	7134 - 7217 feet
Nisku Carbonate	7217 - 7302 feet (Injection)
(Nisku porosity)	7242 - 7267 feet
Duperow	7302 feet
Total Depth (TD)	7307 feet in Duperow

TOTAL DISSOLVED CONTENT (TDS) OF CRITICAL FORMATIONS

*	Judith River	Greater than 10,000 mg/l
**	Heath	Greater than 10,000 mg/l
**	Charles	Greater than 10,000 mg/l
**	Mission Canyon	Greater than 100,000 mg/l
**	Nisku	Greater than 100,000 mg/l

* Judith River sand(s) delineated as non-USDW by the EPA (UNDERGROUND INJECTION ACTIVITIES INTO THE JUDITH RIVER FORMATION ON THE FORT PECK INDIAN RESERVATION: December 1, 1985), the Fort Peck Indian Reservation, and Robert Bergantino, State of Montana.

** TDS values confirmed by water analysis, and/or Robert Bergantino, State of Montana.

Robert Bergantino, State of Montana, advised the Permit writer that there are no USDWs in T28N - R51E, and especially in Section 10 of that township and range.

NISKU CONFINING INTERVAL: The open-hole LATEROLOG identifies twenty-five (25) feet (7217 - 7241 feet) of impervious Nisku carbonate above the Nisku injection interval (7242 - 7264 feet, and 113 feet (7104 - 7217 feet) of Three Forks shale above the impervious Nisku carbonate.

MISSION CANYON CONFINING INTERVAL: The open-hole LATEROLOG identifies at least 250 feet (5920 feet - 6170 feet) of impervious Mission Canyon carbonate above the top Mission Canyon injection perforations 6185 feet to 6187 feet.

Murphy Exploration & Production Company has submitted all required information and data necessary for permit issuance in accordance with 40 CFR Parts 144, 146 and 147, and a Draft Permit has been prepared. The Permit will be issued for the operating life of the salt water disposal well, unless the Permit is terminated for reasonable cause (40 CFR §§ 144.39, 144.40 and 144.41). However, the Permit will be reviewed every five (5) years.

This Statement of Basis gives the derivation of the site-specific Permit conditions and reasons for them. The referenced sections and conditions correspond to the sections and conditions in Permit MT2779-04278. The general Permit conditions for which the content is mandatory and not subject to site-specific differences (based on 40 CFR Parts 144, 146 and 147), are not included in the discussion.

Part II, Section A WELL CONSTRUCTION REQUIREMENTS

Casing and Cementing (Condition 1)

The Huber No. 5 is a former Nisku oil well. The permittee intends to convert the well to a Mission Canyon and Nisku salt water disposal well. Fort Peck environmental Tribal authorities approve the proposed disposal intervals. Injection will be below the total depth of the two (2) Heath/Madison oil wells in the area-of-review (AOR).

(1) Surface casing (8-5/8 inch) is set in a 12-1/4 inch diameter hole to a depth of 1028 feet. The cement (575 sacks) used to secure the casing was circulated to the surface.

(2) Production casing (5-1/2 inch) was set in a 7-7/8 inch diameter hole from the surface to a depth of 7307 feet. This casing was secured with 600 sacks of cement. Plug back total depth (PBTD) is 7272 feet. Top of cement, by CBL, is 4740 feet.

(3) The permittee will cement squeeze Kibbey perforations 5185 feet - 5187 feet during conversion to a salt water disposal well.

(4) The permittee will not modify Mission Canyon perforations 6185 feet to 6187 feet and 6421 feet to 6423 feet, and Nisku perforations 7242 feet to 7264 feet.

Tubing and Packer Specifications (Condition 2)

Tubing and packer placement is designed to prevent injected fluids from coming into contact with the outermost casing string protecting USDWs. The 2-7/8 inch tubing, with injection packer, will be set at a depth no higher than 100 feet above the top Mission Canyon perforation.

Monitoring Devices (Condition 3)

For the purpose of taking tubing and tubing/long string casing annulus pressure measurements, the Environmental Protection Agency (EPA) is requiring that the permittee install 1/2 inch fittings with cut-off valves at the well head on the tubing, and on the tubing/casing annulus. EPA is further requiring the permittee to install a sampling tap on the line to the injection well and a flow meter with a cumulative volume indicator that will be used to measure flow rates and cumulative volumes of fluids injected.

PART II, Section B CORRECTIVE ACTION

Within the 1/4-mile radius area of review (AOR) there are two (2) oil wells (Mississippian Heath and Madison/Charles Formations); the Huber No. 1 (SE NE Section 10 - T28N - R51E), and the Huber No. 2 (SW NE Section 10 - T28N - R51E). The applicant is not required to take any corrective action. The Mission Canyon and Nisku injection intervals (Huber No. 5 SWDW) are stratigraphically lower and structurally deeper than the producing intervals in the Huber No. 1 and Huber No. 2. Total depths in the Huber No. 1 and Huber No. 2 are above the top Mission Canyon injection perforation.

PART II, Section C WELL OPERATION

Prior to Commencing Injection (Condition 1)

Injection operations shall not commence until the permittee has complied with the following:

a. Conversion is complete and the permittee has submitted a Rework Report (EPA Form 7520-12).

b. A mechanical integrity test (MIT) shall be performed, conducted according to the guidelines discussed in an Appendix to the Permit. The results of the MIT will be submitted to the EPA for review and approval.

c. Has submitted the disposal zone pore pressure by measuring the static fluid level.

d. As the EPA considers the cement bond log of somewhat dubious quality, the permittee will conduct a radioactive tracer survey (RTS) of the top disposal interval (Mission Canyon) per guidance in an Appendix to the Permit. The RTS will establish confinement of the injectate to the permitted disposal perforations.

Mechanical Integrity (Condition 2)

A tubing/casing annulus pressure test must be repeated at least once every five (5) years to demonstrate continued tubing, packer, and casing integrity.

Injection Interval (Condition 3)

Injection will be limited to the gross Mission Canyon - Nisku interval 6185 feet to PBTD 7272 feet.

Injection Pressure Limitation (Condition 4)

Maximum injection pressure (MIP), measured at the surface, shall not exceed an amount that the Director determines is appropriate to ensure that injection does not initiate new fractures or propagate existing fractures in the confining zone overlying the injection zone. The maximum injection pressure was calculated using an interim fracture gradient of 0.860 psi/ft for the top Mission Canyon perforation, i.e., 6185 feet. (Within 60 days after authorization to commence injection the permittee will run a step-rate test to determine the accurate formation face fracture gradient).

The EPA used a Madison Formation "C" Member Initial-Shut-In-Pressure (ISIP: 2400 psi) from the Lustre Field (T31N-R44E) to establish an acceptable interim fracture gradient for the Mission Canyon (Mmc) disposal interval in the Huber No. 5 SWDW. The Madison "C" Formation, is approximately 200 feet above the Mission Canyon, in the Luster Field. Depths to the Mission Canyon in the Lustre Field, and in the Huber No. 5 SWDW, approximate 6100 feet.

TO ESTABLISH MISSION CANYON FRACTURE GRADIENT

FG = ISIP + HP/D

Where: FG = Fracture gradient (Mission Canyon Fm.)
ISIP = Initial-Shut-In-Pressure: 2400 psi
HP = Hydrostatic Pressure:
= (Depth)(SG)(0.433)
D = Depth: 6185 feet = top Mmc perf.
SG = 1.1

FG = 2400 + (6185)(1.1)(0.433)/6185
= 0.86 psi/ft for Mission Canyon Formation

TO ESTABLISH MAXIMUM SURFACE INJECTION PRESSURE

MIP = [FG - 0.433 Sg] d

Where: MIP = maximum pressure at wellhead
Sg = specific gravity of produced combined Heath and Charles water: 1.1
d = depth to injection zone = 6185 feet

or MIP = [0.860 - 0.433 (1.1)] 6185

MIP = 2373 psig

Injection Volume Limitation (Condition 5)

The injection rate and cumulative volume will not be limited, but in no case shall the injection pressure exceed that listed in Part II, Section C, (Condition 4), above.

PART II, Section D MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

Injection Well Monitoring Program (Condition 1)

The permittee is required to monitor water quality of the injected fluids on an annual basis. A water sample of injected fluids shall be analyzed for total dissolved solids, pH, specific conductivity, and specific gravity. Any time there is a change in the source of injection fluid, a new water quality analysis is also required. This analysis is required to be reported to EPA annually. Each contributing well will be identified by name and location, with the source formation also identified.

In addition, weekly observations of flow rate, injection pressure, annulus pressure and cumulative volume will be made. At least one observation of each (whether or not fluids are being injected) shall be recorded at regular intervals no greater than thirty (30) days, and shall be representative of values obtained during operating conditions. This record is required to be reported to EPA annually.

Record Keeping (Condition 3)

The permittee/operator shall maintain copies (or originals) of all pertinent records, and available for EPA inspection, at the office of:

Murphy Exploration & Production Company
Highway 2 East
Poplar, MT 59255

PART II, Section E PLUGGING AND ABANDONMENT

Plugging and Abandonment Plan (Condition 2)

The schematic diagram Plugging and Abandonment Plan submitted to the EPA by the applicant has been revised by the EPA and the revision is incorporated into the Permit, (Appendix C). This plan shall be binding on the permittee. This plan is consistent with UIC requirements.

PLUG NO. 1: Leave a cement plug inside of the 5-1/2 inch casing from 6135 feet to PBTD 7272 feet.

PLUG NO. 2: Leave a cement plug inside of the 5-1/2 inch casing across the Kibbey interval 5135 feet to 5225 feet.

PLUG NO. 3: Leave 100-foot cement plugs, 975 feet to 1075 feet, within the 5-1/2 inch casing and on the backside of the 5-1/2 inch casing.

PLUG NO. 4: Set a cement plug inside of the 5-1/2 inch casing from the surface to a depth of 50 feet, and a similar cement plug in the 5-1/2 inch X 8-5/8 inch casings annulus from surface to a depth of 50 feet.

PART II, Section F FINANCIAL RESPONSIBILITY

Demonstration of Financial Responsibility (Condition 1)

Murphy Exploration & Production Company has submitted a Surety Bond and Standby Trust Agreement, in the amount of $21,800, that have been reviewed and accepted by EPA as sufficient for the EPA modified Plugging and Abandonment (P&A) Plan.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

AUG 5 1997

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Bruce MacArthur
Sr. Operations Coordinator
Murphy Exploration & Production Company
131 South Robertson Street
New Orleans, LA 70161

RE: UNDERGROUND INJECTION CONTROL (UIC)
Final Permit: Huber No. 5 SWD
EPA Permit No. MT2779-04278
Roosevelt County, Montana

Dear Mr. MacArthur:

Enclosed are a **Final** Underground Injection Control Permit for the proposed salt water disposal (SWD) well, Huber No. 5 SWD, and a Statement of Basis which discusses the development of the Final Permit.

The public comment period ended July 26, 1997. There were no comments from either Murphy Exploration & Production Company, the general public, or the Fort Peck Indian Reservation.

Following conversion, but prior to injection, Murphy Exploration & Production Company (Murphy) must meet the requirements outlined in Final Permit, Part II, Section C. 1., Prior to Commencing Injection:

- Mechanical Integrity Test,
- Pore pressure of injection interval,
- EPA Form No. 7520-12, and a
- Radioactive tracer survey of the Mission Canyon injection interval.

Within sixty (60) days following authorization to commence injection, Murphy will run a step-rate test (SRT) to establish the accurate formation-face fracture gradient of the gross injection interval.

It is the responsibility of Murphy to be familiar with, and to comply with, all conditions contained in the Permit.

If you have any questions in regard to this action please call Emmett Schmitz at (303) 312-6174. Please send all correspondence, forms and reports to the **ATTENTION: Emmett Schmitz**, citing **MAIL CODE: 8P2-W-GW**.

Sincerely,

Kerrigan G. Clough
Assistant Regional Manager
Water Management Division
Office of Pollution Prevention,
State and Tribal Assistance

Enclosures: Final Permit
Statement of Basis

cc w/ encl: Mr. Jim Boyter, MO

Ms. Debi Madison
Environmental Engineer
Fort Peck Assiniboine & Sioux Tribes
P. O. Box 1027
Poplar, MT 59255

Mr. Ray Reede
Murphy Oil USA
P. O. Box 547
Poplar, MT 59255

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

UNDERGROUND INJECTION CONTROL PROGRAM

FINAL PERMIT

Class II Salt Water Disposal Well

Permit No. MT2779-04278

Well Name: Huber No. 5 SWDW

Field Name: East Poplar

County & State: Roosevelt County, Montana

issued to:

Murphy Exploration & Production Company
Highway 2 East
Poplar, Montana 59255

Prepared: July 1997

Final

TABLE OF CONTENTS

PART I. AUTHORIZATION TO CONVERT AND INJECT

Pursuant to the Underground Injection Control Regulations of the U. S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146, and 147,

Murphy Exploration & Production Company
P. O. Box 547
Poplar, Montana 59255

is hereby authorized to inject into a Class II disposal well, commonly known as the Huber No. 5 SWDW, located in the SW NE (1980 feet from the north line and 1420 feet from the east line) Section 10, Township 28 North, Range 51 East, Roosevelt County, Montana. Injection shall be for the purpose of disposing of produced water from the Mississippian Heath and Mississippian Madison/Charles Formations into the stratigraphically older/deeper Mississippian Mission Canyon and Devonian Nisku Formations.

Injection activities shall not commence until the operator has fulfilled all applicable conditions of this Permit and has received written authorization from the Director. "Prior to Commencing Injection" requirements are set forth in Part II. Section C. 1. of this Permit.

All conditions set forth herein refer to Title 40 Parts 124, 144, 146, and 147 of the Code of Federal Regulations and are regulations that are in effect on the date that this Permit becomes effective.

This Permit consists of a total of forty-nine (49) pages and includes all items listed in the Table of Contents. Further, it is based upon representations made by the permittee and on other information contained in the administrative record.

This Permit and the authorization to inject are issued for the operating life of the well, unless terminated. The Permit will be reviewed by EPA at least every five (5) years to determine whether action under 40 CFR § 144.36 (a) is warranted. The Permit will expire upon delegation of primary enforcement responsibility for the UIC Program to the State of Montana and/or Fort Peck Tribes, unless that State or Tribes has both adequate authority, and chooses, to adopt and enforce this Permit as a State or Tribal Permit.

Issued: AUG 5 1997

This Permit shall become effective: AUG 5 1997

Kerrigan G. Clough
* Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

NOTE: The person holding this title is referred to as the "Director" throughout this permit.

PART II. SPECIFIC PERMIT CONDITIONS

A. WELL CONSTRUCTION REQUIREMENTS

1. Casing and Cementing. Construction and conversion details submitted with the application are hereby incorporated into this Permit as Appendix A, and shall be binding on the permittee.

2. Tubing and Packer Specifications. A tubing of two and seven-eighths (2-7/8) inches diameter is being utilized. The tubing with injection packer will be set no more than 100 feet above the top Mission Canyon perforation.

3. Monitoring Devices. The operator shall provide and maintain in good operating condition:

   (a) a tap on the suction line for the purpose of obtaining representative samples of the injection fluids;

   (b) two (2), one-half (1/2) inch Female Iron Pipe (FIP) fittings, isolated by plug or globe valves, and located: 1) at the wellhead on the tubing; and 2) on the tubing/casing annulus, and positioned to allow attachment of 1/2 inch Male Iron Pipe (MIP) gauges;

   (c) a flow meter with cumulative volume recorder that is certified for at least ninety-five (95) percent accuracy, throughout the range of injection rates allowed by the permit.

4. Proposed Changes and Workovers. The permittee shall give advance notice to the Director, as soon as possible, but no later than forty-five (45) days prior to any major workover, of any planned physical alterations or additions to the permitted well. Major alterations or workovers of the permitted well shall meet all conditions as set forth in this Permit. A major alteration/workover shall be considered any work performed, which affects casing, packer(s), or tubing. In addition, the permittee shall provide all records of well workovers, logging, or other test data to EPA within sixty (60) days of completion of the activity. Appendix B contains samples of the appropriate reporting forms.

Demonstration of mechanical integrity shall be performed within thirty (30) days of completion of workovers/alterations and prior to resuming injection activities, in accordance with Part II, Section C. 2. (a).

5. Formation Logging and Well Testing. During the conversion of the well, but prior to injection, the permittee is to submit for EPA review and approval:

   a) A mechanical integrity test (MIT), as described in Appendix B.

   b) The results of the measurement of the pore pressure (static fluid level).

   c) Within sixty (60) days following receipt of authorization to commence injection, the permittee will conduct a step-rate test (SRT) to determine the accurate Mission Canyon formation-face fracture gradient.

   d) The results of a radioactive tracer survey across Mission Canyon injection perforations.

6. Postponement of Conversion. If the well is not converted to injection status within one (1) year from the effective date of this Permit, the well will be plugged and abandoned in accordance with the Plugging and Abandonment Plan (Appendix C), unless the permittee requests an extension. The request shall be made to the Director in writing and state the reasons for the delay in conversion and confirm the protection of all USDWs. The extension under this section may not exceed one (1) year. Financial responsibility shall be maintained during the period of inactivity in accordance with Part 11, Section F.

B. CORRECTIVE ACTION

The applicant submitted the required Area of review (AOR) information with the Permit application. There are two (2) Mississippian Heath and Madison/Charles oil wells within the AOR, the Huber No. 1 and the Huber No. 2; both with total depth several hundreds of feet above the top disposal perforation.

C. WELL OPERATION

1. Prior to Commencing Injection. Injection operations may not commence until the permittee has complied with (a), (b), (c), and (d), as follows:

   (a) Conversion is complete, and the permittee has submitted a Well Rework Record (Form 7520-12) in Appendix B; or

      (i) The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or

      (ii) The permittee has not received notice from the Director of his or her intent to inspect or otherwise review the new injection well within thirteen (13) days of the date the Director receives the Well Completion Report in paragraph (a) of this permit condition in which case prior inspection or review is waived and the permittee may commence injection. (NOTE: However, in all circumstances, item (b) below must also be satisfied).

   (b) A casing/tubing annulus pressure test must be performed and witnessed by an authorized representative of the EPA prior to commencement of injection. The Huber No. 5 SWDW must pass the test, thereby demonstrating the absence of leaks in the casing, tubing, and packer. Written authorization to inject will be given subsequent to the well completion and mechanical integrity demonstration.

   (c) Upon conversion the applicant shall be required to determine the reservoir pressure (pore pressure) of the permitted disposal interval.

   (d) Run a Radiocative Tracer Survey of the Mission Canyon injection interval.

2. Mechanical Integrity.

   (a) Method of Demonstrating Mechanical Integrity. A demonstration of the absence of significant leaks in the casing, tubing, and/or packer must be made by performing a tubing/casing annulus

pressure test. This test shall be for a minimum of thirty (30) minutes at: (1) a pressure of 300 pounds per square inch gauge (psig) measured at the surface, if the well is shut-in; or (2) a pressure differential of 200 psig, if injection activities are continued during the test. The tubing/casing annulus shall be filled with a non-corrosive fluid (either a non-toxic liquid or the injection liquid) at least twenty-four (24) hours in advance of the test. Pressure values shall be recorded at five-minute intervals. A well passes the mechanical integrity test if there is less than a ten (10) percent decrease or increase in pressure over the forty-five (45) minute period.

(b) Schedule for Demonstration of Mechanical Integrity. A demonstration of mechanical integrity shall be made at regular intervals, no less frequently than once every five (5) years, in accordance with 40 CFR § 146.8 and paragraph (a), above, unless otherwise modified. Initiation of mechanical integrity demonstrations will be according to the following provisions:

(i) It shall be the permittee's responsibility to arrange and conduct the routine five-year tubing/casing annulus pressure test demonstration. The permittee shall notify the Director of his intent to demonstrate mechanical integrity at least thirty (30) days prior to such demonstration. Results of the test shall be submitted to the Director as soon as possible but no later than sixty (60) days after the demonstration.

(ii) In addition to any demonstration made under paragraph (i), above, the Director may require a demonstration of mechanical integrity, at any time during the permitted life of the well.

(c) Loss of Mechanical Integrity. If the well fails to demonstrate mechanical integrity, or a loss of mechanical integrity as defined by 40 CFR § 146.8 becomes evident during operation, the permittee shall notify the Director in accordance with Part III, Section E. 10. (c) of this Permit. Furthermore, **injection activities shall be terminated immediately, and operation shall not be resumed until the permittee has taken necessary actions to**

restore integrity to the well and the Director gives approval to recommence injection.

3. Injection Interval. Injection shall be limited to the gross Mission Canyon - Nisku interval 6185 feet to PBTD 7272 feet.

4. Injection Pressure Limitation.

   (a) Injection pressure, measured at the surface, shall not exceed an amount that the Director determines is appropriate to ensure that injection does not initiate new fractures or propagate existing fracture in the confining zone adjacent to USDWs.

   (b) The exact pressure limit may be increased or decreased by the Director in order to ensure that the requirements in paragraph (a) are fulfilled. In order to determine an exact pressure limit, the permittee shall conduct a step rate test (SRT) or other authorized injection test(s) that will serve to determine the fracture pressure of the injection zone. Test procedures shall be preapproved by the Director. The Director will specify in writing, to the permittee, any increase or decrease to the injection pressure based upon the test results and/or other parameters reflecting actual injection operations. Until such time that this demonstration is made, **the initial injection pressure, measured at the surface, shall not exceed 2373 psig.** HOWEVER, WITHIN 60 DAYS FOLLOWING AUTHORIZATION TO COMMENCE INJECTION, THE PERMITTEE WILL RUN A STEP-RATE TEST (SRT) TO ESTABLISH THE ACCURATE FORMATION-FACE FRACTURE GRADIENT.

5. Injection Volume Limitation. The injection rate and volume will not be limited, but in no case shall the injection pressure exceed that listed in Part II, Section C. 4. (b) above.

6. Injection Fluid Limitation. Injected fluids shall be limited to those which are brought to the surface in connection with natural gas storage operations, or conventional oil and gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection. Fluids shall be further limited to those generated by sources owned or operated by the

permittee. The permittee shall provide an annual listing of the sources of injected fluids in accordance with the reporting requirements in Part II. Section D. 4. of this Permit.

7. Annular Fluid. The annulus between the tubing and the casing shall be filled with fresh water treated with a corrosion inhibitor or other fluid as approved, in writing, by the Director.

D. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

1. Injection Well Monitoring Program. Samples and measurements shall be representative of the monitored activity. The permittee shall utilize the applicable analytical methods described in Table 1 of 40 CFR § 136.3, or in Appendix III of 40 CFR Part 261, or in certain circumstances, by other methods that have been approved by the EPA Administrator. Monitoring shall consist of:

   (a) Analysis of the injected fluids, performed:

      (i) annually for Total Dissolved Solids, pH, Specific Conductivity, and Specific Gravity; and

      (ii) whenever there is a change in the source of disposed fluids. A comprehensive water analysis shall be submitted to the Director within thirty (30) days of any change in injection fluids.

   (b) Weekly observations of flow rate, injection pressure, annulus pressure and cumulative volume. One value for each of the above (whether or not fluids are being injected) shall be recorded at regular intervals no greater than thirty (30) days, and shall be representative of values obtained during operating conditions.

2. Monitoring Information. Records of any monitoring activity required under this Permit shall include:

   (a) The date, exact place, the time of sampling or field measurements;

   (b) The name of the individual(s) who performed the

sampling or measurements;

(c) The exact sampling method(s) used to take samples;

(d) The date(s) laboratory analyses were performed;

(e) The name of the individual(s) who performed the analyses;

(f) The analytical techniques or methods used by laboratory personnel; and

(g) The results of such analyses.

3. Recordkeeping.

(a) The permittee shall retain records concerning:

(i) the nature and composition of all injected fluids until three (3) years after the completion of plugging and abandonment which has been carried out in accordance with the Plugging and Abandonment Plan shown in Appendix C, and is consistent with 40 CFR § 146.10.

(ii) all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit for a period of at least five (5) years from the date of the sample, measurement or report throughout the operating life of the well.

(b) The permittee shall continue to retain such records after the retention period specified in paragraphs (a) (i) and (a) (ii) unless he delivers the records to the Director or obtains written approval from the Director to discard the records.

(c) The permittee shall maintain copies (or originals) of all pertinent records, and available for inspection at the office of Murphy Exploration & Production Company, Highway 2 East, Poplar, Montana 59255.

4. Reporting of Results. The permittee shall submit an Annual Report, whether injecting fluids or not, to the Director summarizing the results of the monitoring required by Part II, Section D. 1. (a), and (b) of

this permit. The permittee shall also include a listing of all sources of fluids injected during the year identifying the source by either the well name(s), the field name(s), or the facility name(s), and, if possible, the formation name and well(s) location.

Copies of all monthly records on disposed fluids, and any major changes in characteristics or sources of disposed fluid shall be included in the Annual Report.

The first Annual Report shall cover the period from the effective date of the Permit through December 31. Subsequently, the Annual Report shall cover the period from January 1 through December 31, and shall be submitted by February 15 of the following year. Appendix B contains Form 7520-11 which may be copied and used to submit the annual summary of monitoring.

E. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment. The permittee shall notify the Director forty-five (45) days before conversion, workover, or abandonment of the well.

2. Plugging and Abandonment Plan. The permittee shall plug and abandon the well as provided in the Plugging and Abandonment Plan, Appendix C. The Director reserves the right to change the manner in which the well will be plugged if the well is modified during its permitted life or if the well is not made consistent with EPA requirements for construction and mechanical integrity. The Director may ask the permittee to update the estimated plugging cost periodically. Such estimates shall be based upon costs which a third party would incur to plug the well according to the plan.

3. Inactive Wells. After a two (2) year period of injection inactivity, the permittee shall plug and abandon the well in accordance with the Plugging and Abandonment Plan, unless the permittee:

   (a) has provided notice to the Director; and

   (b) has demonstrated that the well will be used in the future; and

   (c) has described actions or procedures, satisfactory to the Director, that will be taken to ensure that the well will not endanger underground sources of

drinking water during the period of temporary abandonment.

4. Plugging and Abandonment Report. Within sixty (60) days after plugging the well, the permittee shall submit a report on Form 7520-13 to the Director. The report shall be certified as accurate by the person who performed the plugging operation, and the report shall consist of either: (1) a statement that the well was plugged in accordance with the plan; or (2) where actual plugging differed from the plan, a statement that specifies the different procedures followed.

F. FINANCIAL RESPONSIBILITY

1. Demonstration of Financial Responsibility. The permittee is required to maintain continuous financial responsibility and resources to close, plug and abandon the injection well as provided in the plugging and abandonment plan.

   (a) The permittee has submitted a $21,800 Surety Bond and Standby Trust Agreement that have been reviewed and approved by the EPA.

   (b) The permittee may, upon written request to the Director, change the type of financial mechanism or instrument utilized. A change in demonstration of financial responsibility must be approved by the Director. A minor permit modification will be made to reflect any change in financial mechanisms, without further opportunity for public comment.

2. Insolvency of Financial Institution. In the event that an alternate demonstration of financial responsibility has been approved under (b), above, the permittee must submit an alternate demonstration of financial responsibility acceptable to the Director within sixty (60) days after either of the following events occur:

   (a) The institution issuing the trust or financial instrument files for bankruptcy; or

   (b) The authority of the trustee institution to act as trustee, or the authority of the institution issuing the financial instrument, is suspended or revoked.

3. Cancellation of Demonstration by Financial Institution. The permittee must submit an alternative demonstration of financial responsibility acceptable to the Director, within sixty (60) days after the institution issuing the trust or financial instrument serves 120-day notice to the EPA of their intent to cancel the trust or financial instrument.

PART III. GENERAL PERMIT CONDITIONS

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground disposal in accordance with the conditions of this Permit. The permittee, as authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other disposal activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR, Part 142 or otherwise adversely affect the health of persons. Any underground disposal activity not authorized in this permit or otherwise authorized by Permit or rule is prohibited. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any enforcement action brought under the provisions of Section 1431 of the Safe Drinking Water Act (SDWA) or any other law governing protection of public health or the environment for any imminent and substantial endangerment to human health, or the environment, nor does it serve as a shield to the permittee's independent obligation to comply with all UIC regulations.

B. PERMIT ACTIONS

1. Modification, Reissuance, or Termination. The Director may, for cause or upon a request from the permittee, modify, revoke and reissue, or terminate this Permit in accordance with 40 CFR §§ 124.5, 144.12, 144.39, and 144.40. Also, the permit is subject to minor

modifications for cause as specified in 40 CFR § 144.41. The filing of a request for a Permit modification, revocation and reissuance, or termination or the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any Permit condition.

2. Conversions. The Director may, for cause or upon a request from the permittee allow conversion of the well from a Class II salt water disposal well to a non-Class II well. Requests to convert the disposal well from its Class II status to a non-Class II well, such as, a production well, must be made in writing to the Director. Conversion may not proceed until a Permit modification indicating the conditions of the proposed conversion is received by the permittee. Conditions of the modification may include such items as, but is not limited to, approval of the proposed well rework, follow up demonstration of mechanical integrity, and well specific monitoring and reporting following the conversion.

3. Transfers. This Permit is not transferrable to any person except after notice is provided to the Director and the requirements of 40 CFR § 144.38 are complied with. The Director may require modification, or revocation and reissuance, of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA.

C. SEVERABILITY

The provisions of this Permit are severable, and if any provision of this permit or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Permit shall not be affected thereby.

D. CONFIDENTIALITY

In accordance with 40 CFR Part 2 and 40 CFR § 144.5, any information submitted to EPA pursuant to this Permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available

to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the following information will be denied:

- The name and address of the permittee; and
- Information which deals with the existence, absence or level of contaminants in drinking water.

E. GENERAL DUTIES AND REQUIREMENTS

1. Duty to Comply. The permittee shall comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an emergency Permit. Any Permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, or modification. Such noncompliance may also be grounds for enforcement action under the Resource Conservation and Recovery Act (RCRA).

2. Penalties for Violations of Permit Conditions. Any person who violates a Permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to such actions pursuant to the RCRA. Any person who willfully violates Permit conditions may be subject to criminal prosecution.

3. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

5. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding,

adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

6. Duty to Provide Information. The permittee shall furnish the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

7. Inspection and Entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

   (a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;

   (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

   (c) Inspect at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

   (d) Sample or monitor, at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the SDWA any substances or parameters at any location.

8. Records of Permit Application. The permittee shall maintain records of all data required to complete the permit application and any supplemental information submitted for a period of five (5) years from the effective date of this permit. This period may be extended by request of the Director at any time.

9. Signatory Requirements. All reports or other information requested by the Director shall be signed and certified according to 40 CFR § 144.32.

10. Reporting of Noncompliance.

(a) Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(b) Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than thirty (30) days following each schedule date.

(c) Twenty-four Hour Reporting.

(i) The permittee shall report to the Director any noncompliance which may endanger health or the environment. Information shall be provided orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances by telephoning EPA at (303) 293-1436 (during normal business hours) or at (303) 293-1788 (for reporting at all other times). The following information shall be included in the verbal report:

(A) Any monitoring or other information which indicates that any contaminant may cause endangerment to an underground source of drinking water.

(B) Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

(ii) A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the

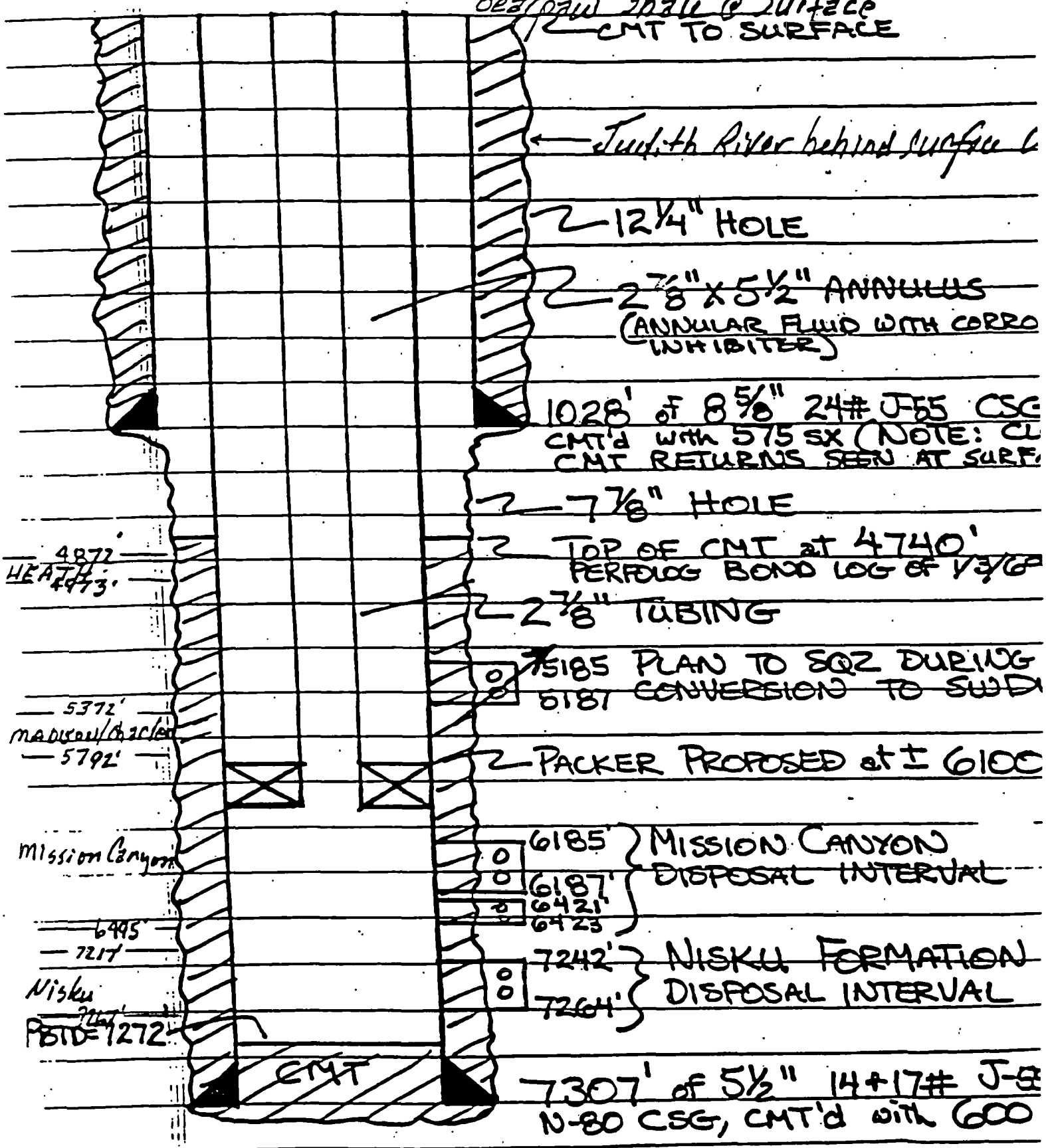
noncompliance.

(d) Other Noncompliance. The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Part III, Section E. 10. (c) (ii) of this permit.

(e) Other Information. Where the permittee becomes aware that any relevant facts were not submitted in the permit application, or incorrect information was submitted in a permit application or in any report to the Director, the permittee shall submit such correct facts or information within two (2) weeks of the time such information becomes known.

APPENDIX A (CONSTRUCTION/CONVERSION DETAILS)

Proposed Construction
Huber No. 5 SWDW



Proposed Construction
Huber No. 5 SWDW

APPENDIX B (REPORTING FORMS)

EPA Form 7520- 7:	APPLICATION TO TRANSFER PERMIT
EPA Form 7520-10:	WELL COMPLETION REPORT
EPA Form 7520-11:	ANNUAL WELL MONITORING REPORT
EPA Form 7520-12:	WELL REWORK RECORD
EPA Form 7520-13:	PLUGGING RECORD
EPA Form R8:	MECHANICAL INTEGRITY PRESSURE TEST

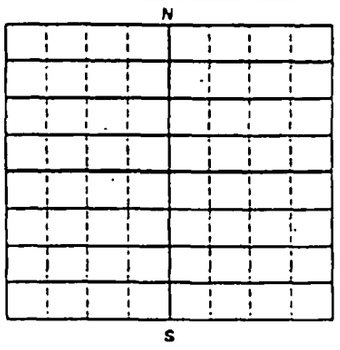
OMB No. 2040-0042
Form Approv. Expires 6-30-98

United States Environmental Protection Agency
Washington, DC 20460

Application To Transfer Permit

Name and Address of Existing Permittee	Name and Address of Surface Owner

Locate Well and Outline Unit on Section Plat- 640 Acres



State	County	Permit Number

Surface Location Description
___ 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section___ Township___ Range___

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location_____ft. from (N/S)_____Line of quarter section
and_____ft. from (E/W)_____Line of quarter section.

Well Activity	Well Status	Type of Permit
___Class I	___Operating	___Individual
___Class II	___Modification/Conversion	___Area
___Brine Disposal	___Proposed	Number of Wells___
___Enhanced Recovery		
___Hydrocarbon Storage		
___Class III		
___Other		

Lease Number Well Number

Name(s) and Address(es) of New Owner(s)	Name and Address of New Operator

Attach to this application a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them.

The new permittee must show evidence of financial responsibility by the submission of a surety bond, or other adequate assurance, such as financial statements or other materials acceptable to the Director.

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

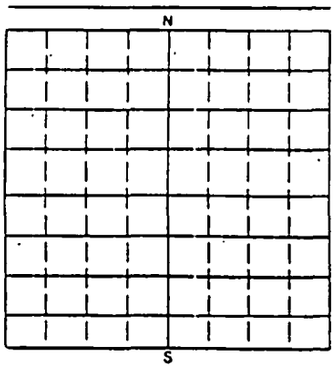
COMPLETION REPORT FOR BRINE DISPOSAL, HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL

Form Approved
OMB No. 2040-0042
Approval Expires 6-30-98

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE | COUNTY | PERMIT NUMBER

SURFACE LOCATION DESCRIPTION
___ 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section ___ Township ___ Range ___

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY
- ☐ Brine Disposal
- ☐ Enhanced Recovery
- ☐ Hydrocarbon Storage

TYPE OF PERMIT
- ☐ Individual
- ☐ Area
- Number of Wells _____

Estimated Fracture Pressure of Injection Zone

Anticipated Daily Injection Volume (Bbls)		Injection Interval	
Average	Maximum	Feet	to Feet
Anticipated Daily Injection Pressure (PSI)		Depth to Bottom of Lowermost Freshwater Formation (Feet)	
Average	Maximum		

Type of Injection Fluid *(Check the appropriate block(s))*
- ☐ Salt Water
- ☐ Brackish Water
- ☐ Fresh Water
- ☐ Liquid Hydrocarbon
- ☐ Other

Lease Name | Well Number

Name of Injection Zone

Date Drilling Began | Date Well Completed

Permeability of Injection Zone

Date Drilling Completed

Porosity of Injection Zone

CASING AND TUBING			CEMENT		HOLE	
OD Size	Wt/Ft — Grade — New or Used	Depth	Sacks	Class	Depth	Bit Diameter

INJECTION ZONE STIMULATION		WIRE LINE LOGS. LIST EACH TYPE	
Interval Treated	Materials and Amount Used	Log Types	Logged Intervals

Complete Attachments A — E listed on the reverse.

CERTIFICATION

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NAME AND OFFICIAL TITLE *(Please type or print)* | | DATE SIGNED

EPA Form 7520-10

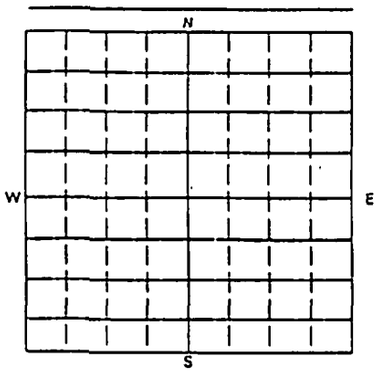
Form Approved. OMB No. 2040-0042. Expires 6-30-98

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

NAME AND ADDRESS OF EXISTING PERMITTEE	NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION
___ 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section___ Township___ Range___

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY	TYPE OF PERMIT
☐ Brine Disposal	☐ Individual
☐ Enhanced Recovery	☐ Area
☐ Hydrocarbon Storage	Number of Wells ____

Lease Name Well Number

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING — CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familier with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obteining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-11

Form Approved. OMB No. 2040-0042. Expires 6-30-98

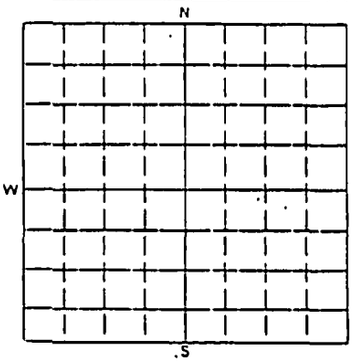
EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION
___ 1/4 of ___ 1/4 of ___ 1/4 of ___ 1/4 of Section ___ Township ___ Range ___

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
☐ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth After Rework	☐ Individual ☐ Area Number of Wells ____
Lease Name	Date Rework Commenced	Well Number
	Date Rework Completed	

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture
Size	Depth	Sacks	Type	From	To	Treatment Record

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture
Size	Depth	Sacks	Type	From	To	Treatment Record

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

EPA Form 7520-12

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

PLUGGING RECORD

NAME AND ADDRESS OF PERMITTEE

NAME AND ADDRESS OF CEMENTING COMPANY

STATE | COUNTY | PERMIT NUMBER

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES

N / W / E / S

SURFACE LOCATION DESCRIPTION

¼ OF ¼ OF ¼ SECTION TOWNSHIP RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

TYPE OF AUTHORIZATION

- ☐ Individual Permit
- ☐ Area Permit
- ☐ Rule

Number of Wells ____

Lease Name

Describe in detail the manner in which the fluid was placed and the method used in introducing it into the hole

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE

WELL ACTIVITY

- ☐ CLASS I
- ☐ CLASS II
  - ☐ Brine Disposal
  - ☐ Enhanced Recovery
  - ☐ Hydrocarbon Storage
- ☐ CLASS III

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- ☐ The Balance Method
- ☐ The Dump Bailer Method
- ☐ The Two-Plug Method
- ☐ Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)							
Depth to Bottom of Tubing or Drill Pipe (ft.)							
Sacks of Cement To Be Used (each plug)							
Slurry Volume To Be Pumped (cu. ft.)							
Calculated Top of Plug (ft.)							
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)							

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS

From	To	From	To

Signature of Cementer or Authorized Representative

Signature of EPA Representative

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (REF. 40 CFR 122.22)

NAME AND OFFICIAL TITLE *(Please type or print)* | SIGNATURE | DATE SIGNED

REGION VIII
999 18th STREET - SUITE 5
DENVER, COLORADO 80202-2 .6

OPERATOR RESPONSIBILITIES FOLLOWING MIT FAILURES

1) IMMEDIATELY - Cease injection and shut-in the well as rapidly as feasible. In no case shall the well remain in operation beyond 48 hours unless the Director (TOM PIKE (303) 293-1544) allows for temporary operation of the well.

2) WITHIN 24 HOURS - Verbally notify the UIC Director of MIT failure even in cases where the failure is detected during a test which was witnessed by a UIC inspector.

3) WITHIN 5 DAYS - Submit a written follow-up report documenting test results, remediation taken or a proposed remediation plan and any limits established by the Director on appropriate volume or time for continued injection operation.

Mechanical Integrity Test
Casing or Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness:_____ Date___/___/ Time_____ am/pm

Test conducted by: _____

Others present: _____

Well:	Well ID:
Field:	Company:
Well Location:	Address:

Time	Test #1	Test #2	Test #3
0 min	_____ psig	_____ psig	_____ psig
5	_____	_____	_____
10	_____	_____	_____
15	_____	_____	_____
20	_____	_____	_____
25	_____	_____	_____
30 min	_____	_____	_____
35	_____	_____	_____
40	_____	_____	_____
45	_____	_____	_____
50	_____	_____	_____
55	_____	_____	_____
60 min	_____	_____	_____
Tubing press.	_____ psig	_____ psig	_____ psig
Result (circle)	Pass Fail	Pass Fail	Pass Fail

Signature of EPA Witness:_____

See back of page for any additional comments & compliance followup.

This is the front side of two sides

Ref: 8WM-DW

MEMORANDUM

SUBJECT: **Final Guidance for Conducting a Pressure Test to Determine if a Well Has Leaks in the Tubing, Casing or Packer**

FROM: Tom Pike, Chief UIC Direct Implementation

TO: UIC Direct Implementation Permit Writers

Introduction

The Underground Injection Control (UIC) regulations require that an injection well have mechanical integrity at all times (40 CFR 144.28 (f)(2) and 40 CFR 144.51 (q)(1)). A well has mechanical integrity (40 CFR 146.8) if:

(1) There is no significant leak in the tubing, casing or packer; and

(2) There is no significant fluid movement into an underground source of drinking water (USDW) through vertical channels adjacent to the injection wellbore.

Definition: Mechanical Integrity Pressure Test for Part I. A pressure test used to determine the integrity of all the downhole components of an injection well, usually tubing, casing and packer. It is also used to test tubing cemented in the hole by using a tubing plug or retrievable packer. Pressure tests must be run at least once every five years. **If for any reason the tubing/packer is pulled, the injection well is required to pass another mechanical integrity test of the tubing casing and packer prior to recommencing injection regardless of when the last test was conducted. Tests run by operators in the absence of an EPA inspector must be conducted according to these procedures and recorded on either the attached form or an equivalent form containing the necessary information. A pressure recording chart documenting the actual annulus test pressures must be attached to the form.**

This guidance addresses making a determination of Part I of Mechanical Integrity (no leaks in the tubing, casing or

packer). The Region's policy is: 1) to determine if there are significant leaks in the tubing, casing or packer; 2) to assure that the casing can withstand pressure similar to that which would be applied if the tubing or packer fails; 3) to make the Region's test procedure consistent with the procedures utilized by other Region VIII Primacy programs; and 4) to provide a procedure which can be easily administered and is applicable to all class I and II wells. Although there are several methods allowed for determining mechanical integrity, the principal method involves running a pressure test of the tubing/casing annulus. Region VIII's procedure for running a pressure test is intended to aid UIC field inspectors who witness pressure tests for the purpose of demonstrating that a well has Part I of Mechanical Integrity. The guidance is also intended as a means of informing operators of the procedures required for conducting the test in the absence of an EPA inspector.

Pressure Test Description

Test Frequency

The mechanical integrity of an injection well must be maintained at all times. Mechanical integrity pressure tests are required at least every five (5) years. **If for any reason the tubing/packer is pulled, however, the injection well is required to pass another mechanical integrity test prior to recommencing injection regardless of when the last test was conducted. The Regional UIC program must be notified of the workover and the proposed date of the pressure test. The well's test cycle would then start from the date of the new test if the well passes the test and documentation is adequate.** Tests may be required on a more frequent basis depending on the nature of the injectate and the construction of the well (see Section guidance on MITs for wells with cemented tubing and regulations for Class I wells).

Region VIII's criteria for well testing frequency is as follows:

1. Class I hazardous waste injection wells; initially [40 CFR 146.68(d)(1)] and annually thereafter;

2. Class I non-hazardous waste injection wells; initially and every two (2) years thereafter, except for old permits (such as the disposal wells at carbon dioxide extraction plants which require a test at least every five years);

3. Class II wells with tubing, casing and packer; initially and at least every five (5) years thereafter;

4. Class II wells with tubing cemented in the hole; initially and every one (1) or two (2) years thereafter depending on well specific conditions (See Region VIII UIC Section Guidance #36);

5. Class II wells which have been temporarily abandoned (TAd) must be pressure tested after being shut-in for two years; and

6. Class III uranium extraction wells; initially.

Test Pressure

To assure that the test pressure will detect significant leaks and that the casing is subjected to pressure similar to that which would be applied if the tubing or packer fails, the tubing/casing annulus should be tested at a pressure equal to the maximum allowed injection pressure or 1000 psig whichever is less. The annular test pressure must, however, have a difference of at least 200 psig either greater or less than the injection tubing pressure. Wells which inject at pressures of less than 300 psig must test at a minimum pressure of 300 psig, and the pressure difference between the annulus and the injection tubing must be at least 200 psi.

Test Criteria

1. The duration of the pressure test is 30 minutes.

2. Both the annulus and tubing pressures should be monitored and recorded every five (5) minutes.

3. If there is a pressure change of 10 percent or more from the initial test pressure during the 30 minute duration, the well has failed to demonstrate mechanical integrity and should be shut-in until it is repaired or plugged.

4. A pressure change of 10 percent or more is considered significant. If there is no significant pressure change in 30 minutes from the time that the pressure source is disconnected from the annulus, the test may be completed as passed

Recordkeeping and Reporting

The test results must be recorded on the attached form. The annulus pressure should be recorded at five (5) minute intervals. **Tests run by operators in the absence of an EPA inspector must be conducted according to these procedures and recorded on the attached form or an equivalent form . A pressure recording chart documenting the actual annulus test pressures must be attached to the submittal.** The tubing pressure at the beginning and end of each test must be recorded. The volume of the annulus fluid bled back at the surface after the test should be measured and recorded on the form. This can be done by bleeding the annulus pressure off and discharging the associated fluid into a five gallon container. The volume information can be used to verify the approximate location of the packer.

Procedures for Pressure Test

1. Scheduling the test should be done at least two (2) weeks in advance.

2. Information on the well completion (location of the packer, location of perforations, previous cement work on the casing, size of casing and tubing, etc.) and the results of the previous MIT test should be reviewed by the field inspector in advance of the test. Regional UIC Guidance #35 should also be reviewed. Information relating to the previous MIT and any well workovers should be reviewed and taken into the field for verification purposes.

3. All Class I wells and Class II SWD wells should be shut-in prior to the test. A 12 to 24-hour shut-in is preferable to assure that the temperature of the fluid in the wellbore is stable.

4. Class II enhanced recovery wells may be operating during the test, but it is recommended that the well be shut-in if possible.

5. The operator should fill the casing/tubing annulus with inhibited fluid at least 24 hours in advance, if possible. Filling the annulus should be undertaken through one valve with the second valve open to allow air to escape. After the operator has filled the annulus, a check should be made to assure that the annulus will remain full. If the annulus can not maintain a full column of fluid, the operator should notify the Director and begin a rework. The operator should measure and report the volume of fluid added to

the annulus. If not already the case, the casing/tubing valves should be closed, at least, 24 hours prior to the pressure test.

Following steps are at the well:

6. Read tubing pressure and record on the form. If the well is shut-in, the reported information on the actual maximum operating pressure should be used to determine test pressures.

7. Read pressure on the casing/tubing annulus and record value on the form. If there is pressure on the annulus, it should be bled off prior to the test. If the pressure will not bleed-off, the guidance on well failures (Region VIII UIC Section Guidance #35) should be followed.

8. Ask the operator for the date of the last workover and the volume of fluid added to the annulus prior to this test and record information on the form.

9. Hook-up well to pressure source and apply pressure until test value is reached.

10. Immediately disconnect pressure source and start test time. (If there has been a significant drop in pressure during the process of disconnection, the test may have to be restarted.) The pressure gages used to monitor injection tubing pressure and annulus pressure should have a pressure range which will allow the test pressure to be near the mid-range of the gage. Additionally, the gage must be of sufficient accuracy and scale to allow an accurate reading of a 10 percent change to be read. For instance, a test pressure of 600 psi should be monitored with a 0 to 1000 psi gage. The scale should be incremented in 20 psi increments.

11. Record tubing and annulus pressure values every five (5) minutes.

12. At the end of the test, record the final tubing pressure.

13. If the test fails, check the valves, bull plugs and casing head close up for possible leaks. The well should be retested.

14. If the second test indicates a well failure, the Region should be informed of the failure within 24 hours by the operator, and the well should be shut-in within 48 hours per Headquarters guidance #76. A follow-up

letter should be prepared by the operator which outlines the cause of the MIT failure and proposes a potential course of action. This report should be submitted to EPA within five days.

15. Bleed off well into a bucket, if possible, to obtain a volume estimate. This should be compared to the calculated value obtained using the casing/tubing annulus volume and fluid compressibility values.

16. Return to office and prepare follow-up.

Alternative Test Option

While it is expected that the test procedure outlined above will be applicable to most wells, the potential does exist that unique circumstances may exist for a given well that precludes or makes unsafe the application of this test procedure. In the event that these exceptional or extraordinary conditions are encountered, the operator has the option to propose an alternative test or monitoring procedures. The request must be submitted by the operator in writing and must be approved in writing by the UIC-Implementation Section Chief or equivalent level of management.

Attachment

FCD: January 20, 1995, p.s.osborne, hms,
C:\DATA\WP\HELEN\PAUL\DRFTGDNC.PSO

APPENDIX C (PLUGGING & ABANDONMENT PLAN)

Plugging and Abandonment Plan

The Plugging and Abandonment Plan submitted by the applicant has been revised by the EPA. The revised plan is consistent with UIC requirements.

PLUG NO. 1: Leave a cement plug inside of the 5-1/2 inch casing from 6135 feet to PBTD 7272 feet.

PLUG NO. 2: Leave a cement plug inside of the 5-1/2 inch casing from 5135 feet to 5225 feet.

PLUG NO. 3: Leave 100-foot cement plugs, 975 feet to 1075 feet, within the 5-1/2 inch casing and on the backside of the 5-1/2 inch casing.

PLUG NO. 4: Set a cement plug inside of the 5-1/2 inch casing from the surface to a depth of 50 feet, and a similar plug in the 5-1/2 inch X 8-5/8 inch casings annulus.

APPENDIX D

GUIDANCE: RADIOACTIVE TRACER SURVEYS

FEBRUARY 28, 1996

U.S. EPA REGION VIII

RADIOACTIVE TRACER SURVEY GUIDELINES AND PROCEDURES

The purpose of running a Radioactive Tracer Survey (RATS) in the referenced injection well is to show whether injected fluids will migrate vertically outside the casing after reaching the perforations. This guidance should be used to develop a specific procedure which accounts for the actual construction and operation procedures of the well in question. The actual procedure to be used must be approved prior to running the log.

GUIDELINES

a. The gamma ray log may be run up to 60 feet/minute at a time constant (TC) of 1 second, or up to 30 feet/minute at a TC of 2 seconds, or up to 15 feet/minute at a TC of 4 seconds. INDICATE LOGGING SPEED AND TIME CONSTANT ON THE LOG HEADING.

b. The logging must be done while the well is **injecting at normal operating pressure and injection volume**. The injection rate and pressure should be brought to equilibrium conditions prior to conducting the RATS.

c. INCLUDE A COLLAR LOCATOR for depth control, an injector, and two detectors (one above and one below the injector).

d. Vertical scale may be 1 inch, 2 inches, or 5 inches per 100 feet.

e. INDICATE IN API UNITS (OR COUNTS PER SECOND) THE HORIZONTAL SCALE. If one gamma curve is recorded, make sure the sensitivity used is such that the tracer material will be obvious when detected and will not be confused with normal "hot spots" in the formations (i.e., gamma ray sensitivity should be such that lithology can be correlated).

f. INDICATE BEGINNING AND ENDING CLOCK TIMES on each log pass.

g. INDICATE INJECTION RATE AND PRESSURE during each log pass.

h. INDICATE VOLUME OF FLUID INJECTED between log passes.

i. INDICATE VOLUME AND CONCENTRATION OF EACH SLUG of tracer material.

j. PROVIDE A PROFILE SHOWING THE PERCENTAGE OF FLUID LOSS ACROSS THE PERFORATED INTERVAL.

PROCEDURE

1. Using the same gamma ray sensitivity for the correlation log as outlined in paragraph (d) in the Guidelines, run a base log from the injection zone to at least 500 feet above the zone (or at least 200 feet above the top of the confining zone);

2. Commence operating well at normal operating injection rate and pressure and **do so until pressure and rate stabilize;**

3. Set injector just below the tubing packer assembly and inject a concentrated slug of tracer;

4. Reduce gamma ray sensitivity enough to keep the entire slug of tracer radiation within the width of the chart paper. To do this, a non-recorded pass through the slug may be run, setting the sensitivity appropriately. Drop tools to an appropriate depth below the slug and record log pass #1. Log above the upper interface until the radiation level returns to the same level as below the slug. Drop tools to an appropriate depth below the slug and record log pass #2 in the same manner as #1. Repeat this process until the slug dissipates to 1/10 of its original level (log pass #1). At this point, increase gamma ray sensitivity to the same as the base log. Make a log pass from the injection zone to 500 feet above the zone (or 200 feet above the confining zone). Drop tools to an appropriate depth below the slug, reduce sensitivity to the same as log pass #1, and record log pass up to the packer. Repeat this process until the tracer slug is gone or has stopped completely. Increase sensitivity to the same as the base log and make a final log pass from the injection zone to 500 feet above the zone (or 200 feet above the confining zone). This pass should duplicate the base log;

5. More than one pass may be shown on a log segment as long as each gamma ray curve along with its collar locator is distinguishable. Otherwise, make each pass on a separate log segment;

6. Set the RATS tool where the bottom detector is located just above the uppermost perforation and inject tracer;

7. As the slug is pumped past the bottom detector, the log trace should show an increase in gamma response;

8. Hold tool in this location for fifteen (15) minutes while pumping;

9. An interpretation of the log must be supplied by the logging company, including a fluid loss profile across the perforations (in, at least, 25 percent increments);

10. Include a schematic diagram of the well on the log. The diagram should show the casing diameters and depths, tubing diameter and depth (if any), perforated intervals or open hole, total or plugged back total depth, and location of tool when slug injected. Indicate the pathway the tracer material appears to have taken by arrows.

APPENDIX E

SUGGESTED STEP-RATE TEST PROCEDURES

SUGGESTED STEP-RATE INJECTIVITY TEST PROCEDURES

The Step-Rate Test (SRT) results will be documented with service company or other appropriate (acceptable) records and/or charts and should be witnessed by an EPA inspector.

The Step-Rate Test Procedure is as follows:

1) The well should be shut in long enough prior to testing that the bottom hole pressures approximate shut-in formation pressures. If the shut-in well flows to the surface, the wellhead injection string will be equipped with a gauge and the static surface pressure will be read and recorded.

2) A series of successively higher injection rates will be established as suggested below, with the elapsed time and pressure values read and recorded for each rate. Each step should last exactly as long as the preceding rate. If stabilized pressure values are not obtained within the times suggested below, the test will result in inconclusive results due to a high permeability and/or underpressured injection zone.

Formation Perm (md)	Time per step-rate (min)
≤ 5 md	60 min
≥ 10 md	30 min

3) Suggested injection rates:

5%
10%
20%
40%
60%
80%
100%

} Of Maximum Anticipated Injection Rate

4) Injection rates should be controlled with a constant flow regulator that has been tested prior to use. A throttling device is not sufficient.

5) Flow rates should be measured with a calibrated turbine flowmeter.

6) Record injection rates with a chart recorder or a strip chart.

7) Measure pressures with a down hole pressure bomb.

8) Measure and record injection pressures with a gauge or recorder (for immediate test results).

9) A plot of injection rates and the corresponding stabilized pressure values should be graphically represented as a constant slope straight line to a point at which the formation "breakdown" pressure is exceeded. The slope of the subsequent straight line should be less than that of the before-fracture straight line.

10) If the fracture pressure has definitely been exceeded with at least two injection rate-pressure combinations greater than the "breakdown" pressure, the injection pump should be stopped and the line valve closed so that the pressure is allowed to bleed-off into the injection formation. There will be an immediate pressure fall-off (Instantaneous Shut-in Pressure or ISIP), after which the pressure values begin to level out. The ISIP will be read and recorded.

11) Once the ISIP is obtained, the SRT is concluded. The ISIP obtained in this manner may be considered the minimum pressure required to hold the fracture open.

12) In the event that formation "breakdown" was not obtained at the maximum test injection pressure utilized, the test results may indicate that the formation is accepting fluids without fracturing.

This SRT outline is consistent with acceptable oilfield practices. It should identify an allowable injection pressure which will provide adequate protection of the underground sources of drinking water at an injection well having demonstrated mechanical integrity. The allowable injection pressure will be determined after an EPA review of the SRT results. Enclosed is a form which you may copy and use to record test data.

STEP-RATE TEST DATA

STEP #1 Test Rate (5% max rate) _____ (bbl/min)

Time (min) :	____	____	____	____	____	____	____
Pressure (psi):	____	____	____	____	____	____	____

STEP #2 Test Rate (10% max rate) _____ (bbl/min)

Time (min) :	____	____	____	____	____	____	____
Pressure (psi):	____	____	____	____	____	____	____

STEP #3 Test Rate (20% max rate) _____ (bbl/min)

Time (min) :	____	____	____	____	____	____	____
Pressure (psi):	____	____	____	____	____	____	____

STEP #4 Test Rate (40% max rate) _____ (bbl/min)

Time (min) :	____	____	____	____	____	____	____
Pressure (psi):	____	____	____	____	____	____	____

STEP #5 Test Rate (60% max rate) _____ (bbl/min)

Time (min) :	____	____	____	____	____	____	____
Pressure (psi):	____	____	____	____	____	____	____

STEP #6 Test Rate (80% max rate) _____ (bbl/min)

Time (min) :	____	____	____	____	____	____	____
Pressure (psi):	____	____	____	____	____	____	____

STEP #7 Test Rate (100% max rate) _____ (bbl/min)

Time (min) :	____	____	____	____	____	____	____
Pressure (psi):	____	____	____	____	____	____	____

ISIP : _____ (psi)

SRT EXAMPLE

The following is an example of a Step-Rate Test with tabular and graphic results. The operator of Anywell #1 set up a SRT for the following conditions:

A) Maximum anticipated injection rate was 4 bbl/min.

B) Following the recommended test procedures, the operator planned on using these rates for the test:

1) 5% of 4 bbl/min = 0.2 bbl/min
2) 10% of 4 bbl/min = 0.4 bbl/min
3) 20% of 4 bbl/min = 0.8 bbl/min
4) 40% of 4 bbl/min = 1.6 bbl/min
5) 60% of 4 bbl/min = 2.4 bbl.min
6) 80% of 4 bbl/min = 3.2 bbl/min
7) 100% of 4 bbl/min = 4.0 bbl/min

C) The formation permeability is estimated as 100 md, therefore each step will last for 30 minutes.

The step-rate test data and graphic results of the test are on the following pages. For this test, the injection formation broke down at approximately 1200 psi, and the ISIP was listed as 1000 psi. Since the injection formation will part at 1000 psi, the maximum injection pressure will be held to the ISIP.

If the formation had not broken down at 1200 psi, the maximum allowable injection pressure would be the maximum pressure obtained during the test.

STEP-RATE TEST ANYWELL #1

STEP #1 Test Rate (5% max rate) 0.2 (bbl/min)

Time (min) :	0	5	10	15	20	25	30
Pressure (psi):	0	90	95	98	99	100	100

STEP #2 Test Rate (10% max rate) 0.4 (bbl/min)

Time (min) :	0	5	10	15	20	25	30
Pressure (psi):	80	170	185	195	199	200	200

STEP #3 Test Rate (20% max rate) 0.8 (bbl/min)

Time (min) :	0	5	10	15	20	25	30
Pressure (psi):	190	325	385	392	398	399	400

STEP #4 Test Rate (40% max rate) 1.6 (bbl/min)

Time (min) :	0	5	10	15	20	25	30
Pressure (psi):	380	700	790	792	795	798	800

STEP #5 Test Rate (60% max rate) 2.4 (bbl/min)

Time (min) :	0	5	10	15	20	25	30
Pressure (psi):	750	990	1030	1090	1150	1180	1200

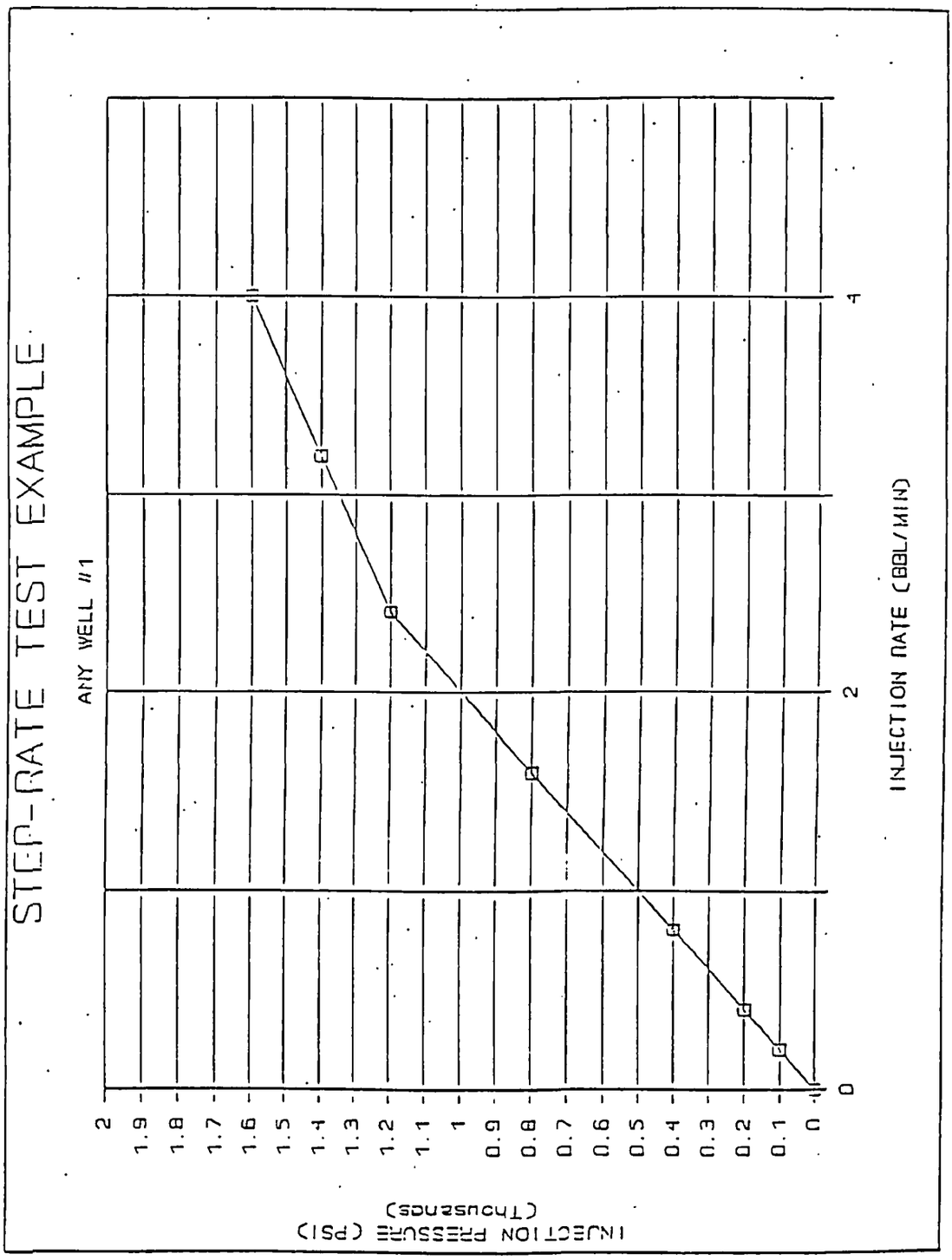
STEP #6 Test Rate (80% max rate) 3.2 (bbl/min)

Time (min) :	0	5	10	15	20	25	30
Pressure (psi):	1100	1250	1325	1370	1390	1395	1400

STEP #7 Test Rate (100% max rate) 4.0 (bbl/min)

Time (min) :	0	5	10	15	20	25	30
Pressure (psi):	1350	1450	1500	1530	1570	1590	1600

ISIP : 1000 (psi)


STEP-RATE TEST EXAMPLE
ANY WELL #1
INJECTION PRESSURE (PSI)
(Thousands)
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
2
4
INJECTION RATE (BBL/MIN)

Form Approved. OMB No. 2040-0042. Approval expires 9-30-86

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

APPLICATION TO TRANSFER PERMIT

NAME AND ADDRESS OF EXISTING PERMITTEE

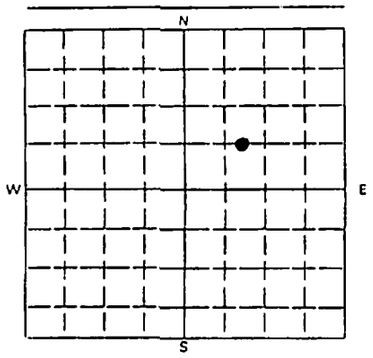
Murphy Exploration & Production Co.
P.O.Box 547
Poplar, MT 59255-0547

NAME AND ADDRESS OF SURFACE OWNER

Zimmerman, Inc.
903 11th Street SW
Sidney, MT

STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT2779-04278

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



SURFACE LOCATION DESCRIPTION

NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY	WELL STATUS	TYPE OF PERMIT
☐ Class I	XX Operating	☒ Individual
XX Class II	☐ Modification/Conversion	☐ Area
XX Brine Disposal	☐ Proposed	Number of Wells 1
☐ Enhanced Recovery		
☐ Hydrocarbon Storage		
☐ Class III		
☐ Other		

Lease Name Huber Well Number 5-D

NAME(S) AND ADDRESS(ES) OF NEW OWNER(S)

NAME AND ADDRESS OF NEW OPERATOR

Attach to this application a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them.

The new permittee must show evidence of financial responsibility by the submission of surety bond, or other adequate assurance, such as financial statements or other materials acceptable to the director.

Effective change of owner/operator from Murphy Exploration and Production Company to

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED
Sidney W. Campbell Manager Onshore Operations		

EPA Form 7520-7 (2-84)

File

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

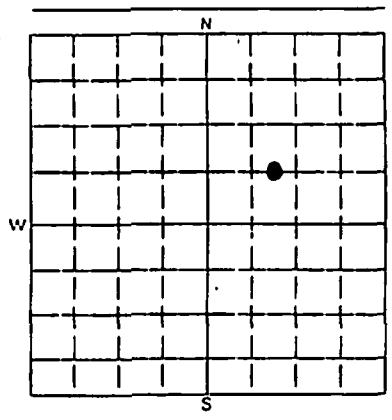
COMPLETION REPORT FOR BRINE DISPOSAL, HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL

Form Approved
OMB No. 2040-0042
Approval expires 9-30-86

NAME AND ADDRESS OF EXISTING PERMITTEE
Murphy Exploration & Prod. Co.
P.O. Box 547
Poplar, Montana 59255-1105

NAME AND ADDRESS OF SURFACE OWNER
Zimmerman, Inc.
903 11th Street Southwest
Sidney, Montana

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
Mt.	Roosevelt	MT2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY
- [X] Brine Disposal
- [ ] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [X] Individual
- [ ] Area

Number of Wells 1

Estimated Fracture Pressure of Injection Zone: 5320#

Anticipated Daily Injection Volume (Bbls)		Injection Interval	
Average	Maximum	Foot	to Foot
6,000	8,500	6185'	7276'

Anticipated Daily Injection Pressure (PSI)		Depth to Bottom of Lowermost Freshwater Formation (Feet)
Average	Maximum	
1000	1590	150'

Type of Injection Fluid *(Check the appropriate block(s))*
- [X] Salt Water
- [ ] Brackish Water
- [ ] Fresh Water
- [ ] Liquid Hydrocarbon
- [ ] Other

Lease Name: Huber
Well Number: 5-D

Name of Injection Zone: Mission Canyon Nisku

Date Drilling Began: 11-26-68
Date Well Completed: 2-6-69
Date Drilling Completed: 12-19-68

Permeability of Injection Zone: 0-100 Millidarcys

Porosity of Injection Zone: 10-15%

CASING AND TUBING / CEMENT / HOLE

OD Size	Wt/Ft — Grade — New or Used	Depth	Sacks Cement	Class	Hole Depth	Bit Diameter
8-5/8"	24# J-55 New	1028	575	G	1028	12-1/4
5-1/2	17# N-80 New	7307	600	G	7307	7-7/8
5-1/2	17# J-55 New	7152				
5-1/2	14# J-55 New	1932				
5-1/2	17# N-80 New	319				
2-7/8	6.5# J-55 Used	6140				

INJECTION ZONE STIMULATION / WIRE LINE LOGS, LIST EACH TYPE

Interval Treated	Materials and Amount Used	Log Types	Logged Intervals
6185-6187		Microlateral Log	4850-7306
6421-6423		Neutron Porosity Log	4800-7300
7240-7250	5000 Gallons 15% HCL	TMD Log	4500-7115
7260-7268		Tracer Survey	5850-7245
7272-7276		Bond Log	4710-7268

Complete Attachments A — E listed on the reverse.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*		DATE SIGNED
		November 18, 199

EPA Form 7520-10 (2-84)

Form 3160-5
(November 1994)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0135
Expires July 31, 1996

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

5. Lease Serial No.: Private
6. If Indian, Allottee or Tribe Name: Private
7. If Unit or CA/Agreement, Name and/or No.: East Poplar Unit
8. Well Name and No.: Huber No. 5
9. API Well No.: 25-085-21024
10. Field and Pool, or Exploratory Area: East Poplar Unit
11. County or Parish, State: Roosevelt

1. Type of Well: ☐ Oil Well ☐ Gas Well ☒ Other
2. Name of Operator: Murphy Exploration and Production Company
3a. Address: P.O. Box 547, Poplar, Mt.
3b. Phone No. *(include area code)*: 406-768-3612
4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*: SW NE Section 10, T28N, R51E 1980' from the North line and 1420' from the East line

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Nouce of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☒ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

INFORMATION PURPOSE ONLY
It is proposed to convert the Huber No. 5 well into a disposal well. The injection intervals are Mission Canyon perforations at 6185-6187', 6421-6423'. and Nisku perforation at 7242-7264'. 2-7/8" tubing will be run with injectin packer set at a depth no higher than 100' above the top of the Mission Canyon perforations. EPA permit has bee applied for and approved EPA Permit No. MT2779-04278

AUG 1997
Bureau of Land Management
Miles City, Montana

14. I hereby certify that the foregoing is true and correct
Name *(Printed/Typed)*: Raymond Reede
Title: District Manager
Signature: Raymond Reede
Date: August 19, 1997

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by: ACCEPTED Title: TEAM LEADER Date: AUG 21 1997

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office: 8-20-97

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on reverse)

Form 3160-5
(November 1994)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0135
Expires July 31, 1996

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

5. Lease Serial No.
Private

6. If Indian, Allottee or Tribe Name
Private

7. If Unit or CA/Agreement, Name and/or No.
East Poplar Unit

1. Type of Well
☐ Oil Well ☐ Gas Well ☒ Other

8. Well Name and No.
Huber No. 5-D

2. Name of Operator
Murphy Exploration and Production Company

9. API Well No.
25-085-21024

3a. Address
P.O. Box 547, Poplar, Mt.

3b. Phone No. *(include area code)*
406-768-3612

10. Field and Pool, or Exploratory Area
East Poplar Unit

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
SW NE Section 10, T28N, R51E
1980' from the North line and 1420' from the East line

11. County or Parish, State
Roosevelt

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other _____
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☒ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

INFORMATION PURPOSE ONLY

Perforated from 6185-6187, 6421-6423, 7240-7250, 7260-7268 and 7272-7276. Ran 6140' of 2 7/8" tubing. Set packer at 6140'. Acidized Nisku formation with 5000 gallons 15% hydrochloric acid, 75 gallons HAI-85M, 50# Ferchek A and 50 gallons Sperse All M

Ran MIT on 11-17-97 - passed.

14. I hereby certify that the foregoing is true and correct
Name *(Printed/Typed)*
Raymond Reede

Title
District Manager

Signature
Raymond Reede

Date
December 9, 1997

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by
ACCEPTED

Title ADM - Minerals

Date DEC 19 1997

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on reverse)

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)
TO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill	X	Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

November 21, 19 68

Following is a {notice of intention to do work / report of work done} on land {owned / leased} described as follows:

LEASE Huber

MONTANA (State) Roosevelt (County) Poplar (Field)

Well No. 5 10 (m. sec.) 28N (Township) 51E (Range) (Meridian)

The well is located 1980 ft. from {N} line and 1420 ft. from {E} line of Sec. 10

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the ground level derrick floor above the sea level is 2080'

READ CAREFULLY — DETAILS OF PLAN OF WORK — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK

Signal Drilling Company Inc., E. A. Polumbus, Jr. and Ladd Petroleum propose to drill a 7 7/8" hole to 7300' at above location. Approximately 1000' of 8 5/8" surface casing will be set and cemented to surface. All potential producing zones will be tested by DST, cores or logs. A certified plat of the location is enclosed.

Check for $150.00 attached to cover permit cost.

Approved subject to conditions on reverse of form

Date

By
District Office Agent Title

Signal Drilling Company, Inc.
Company

By F. M. Stevenson
President
Title

1200 Security Life Bldg.
Address Denver, Colorado 80202

COMMISSION USE ONLY
API WELL NUMBER
2 | 5
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

well file
Huber 5

(SUBMIT IN QUADRUPLICATE)
TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
Change of Operator	X		

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

March 4, 1971

Following is a {notice of intention to do work / report of work done} on land {owned / leased} described as follows:

LEASE Huber

MONTANA (State) Roosevelt (County) (Field)

Well No. 5 10 (m. sec.) 28N (Township) 51E (Range) (Meridian)

The well is located 1980 ft. from {N / S} line and 1980 ft. from {E / W} line of Sec. 10

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is .....

READ CAREFULLY — **DETAILS OF PLAN OF WORK** — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

E. A. Polumbus, Jr. & Associates, Inc. became Operator of Huber No. 5, EC SW NE of Section 10-28N-51E on December 19, 1968.

Approved subject to conditions on reverse of form

Date March 12 1971

By Norman J. Brandly Exec. Secy.
District Office Agent Title

Company Signal Drilling Company, Inc.

By J. M. Stevens

Title Pres.

Address 1200 Security Life Bldg., Denver, Colo. 80202

COMMISSION USE ONLY
API WELL NUMBER
25
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

SS

Reg. 46

Form No. 2
GENERAL RULES

(SUBMIT IN QUADRUPLICATE)
TO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

RECEIVED
OIL & GAS CONS. COMM.
STATE OF MONT.
BILLINGS

SUNDRY NOTICES AND REPORT ON WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
" " " " Perf. Addn'l. Zone	X		

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

September 17, 1971

Following is a notice of intention to do work ~~report of work done~~ on land ~~owned~~ leased described as follows:

LEASE Huber

MONTANA (State) Roosevelt (County) East Poplar - Non Unit (Field)

Well No. 5 E½ SW NE/4 Section 10 (m. sec.) 28N (Township) 51E (Range) M.P.M. (Meridian)

The well is located 1980 ft. from N line and 1420 ft. from E line of Sec. 10

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is 2092 KB

READ CAREFULLY — DETAILS OF PLAN OF WORK — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

The above well was completed in the 2nd porosity zone of the Nisku in January, 1969. At this time the well is flowing approximately 80 BOPD and 1500 BWPD from perforations at 7262-64. It is proposed to perforate the 1st Nisku porosity zone from 7242-44 and produce from both 1st and 2nd porosity zones.

Approved subject to conditions on reverse of form

Date

By
District Office Agent Title

Company THE POLUMBUS CORPORATION

By [signature]

Title Vice-President

Address 1000 Capitol Life Building
Denver, Colorado 80203

COMMISSION USE ONLY
API WELL NUMBER

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate

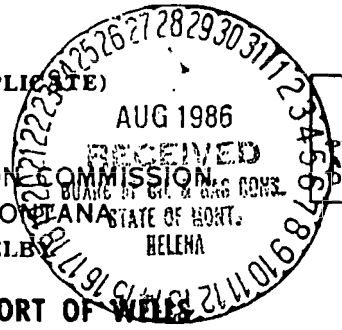
WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)
TO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY



NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
Notice of Change of Operator	X		

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

August 8, 1986

Following is a {notice of intention ~~to do work~~ / ~~report of work done~~} on land {~~owned~~ / leased} {described as follows:

LEASE HUBER

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 5 10 (m. sec.) 28N (Township) 51E (Range) Principal (Meridian)

The well is located 1980 ft. from {N / ~~S~~} line and 1420 ft. from {E / ~~W~~} line of Sec. 10

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is .....

READ CAREFULLY **DETAILS OF PLAN OF WORK** READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Notification of sale of above described property, effective 7-1-86, resulting in a change of Operator.

Certified by: GRACE PETROLEUM CORPORATION

By: Kay Fuller

Title: Supervisor
Production Accounting

Approved subject to conditions on reverse of form

Date SEP 15 1986
ORIGINAL SIGNED BY

By Dee Rickman, Executive Secretary
District Office Agent Title

Company MURPHY OIL, U.S.A., INC.

By

Title Manager of Production Department

Address 200 Peach St.
El Dorado, ARK 71730

COMMISSION USE ONLY
API WELL NUMBER
25 0185 21024
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

Form No. 2 R 4-85

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE BOARD.

(SUBMIT IN QUADRUPLICATE)
TO

BOARD OF OIL AND GAS CONSERVATION OF THE STATE OF MONTANA

BILLINGS OR SHELBY

SUNDRY NOTICES AND REPORT OF WELLS

ARM 36.22.307
ARM 36.22.601
ARM 36.22.602
ARM 36.22.603
ARM 36.22.604
ARM 36.22.605
ARM 36.22.1003
ARM 36.22.1004
ARM 36.22.1013
ARM 36.22.1301
ARM 36.22.1306
ARM 36.22.1309

Notice of Intention to Drill *		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement	X	Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

May 7, 1990

Following is a {notice of intention to do work / ~~report of work done~~} on land {~~owned~~ / leased} described as follows:

LEASE TYPE Private (Private, State, Federal, Indian) LEASE Huber 5

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 5 E/2 SW NE 10 (m. sec.) T28N (Township) 51E (Range) Principal (Meridian)

The well is located 1980 ft. from {N / ~~S~~} line and 1420 ft. from {E / ~~W~~} line of Sec. 10

* For notice of intention to drill, write the API# or the well name of another well on this lease if one exists

LOCATE WELL SITE ACCURATELY ON PLAT ON BACK OF THIS FORM.

The elevation of the ground or K.B. above the sea level is

READ CAREFULLY **DETAILS OF PLAN OF WORK** **READ CAREFULLY**

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings, cementing points, and all other important proposed work, particularly all details of Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

The Huber No. 5 well is currently temporarily abandoned with Nisku perforations open at 7262'-64' and 7242'-48'. It is proposed to run a HLC Thermal Multigate Decay Log from 7250' up to 4750' and evaluate. If the Nisku formation shows no commercial production set a CIBP at 7240' and perforate the best Zone and test.

note - production of 6000' or less will require an exception to state wide spacing rule

Approved subject to conditions on reverse of form

Date MAY 14 1990

By Lloyd W Podoll, field supv
District Office Agent Title

Company Murphy OIl USA, Inc.

By Raymond Reede

Title District Manager

Address Box 547, Poplar, MT 59255

BOARD USE ONLY
API WELL NUMBER
25 085 21021
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the appropriate District for approval.
DRILLING PERMIT EXPIRES SIX MONTHS FROM DATE OF APPROVAL.

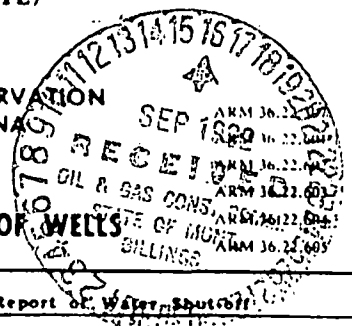
768-3611

Form No. 2 H 4-85 Huber 5 (SUBMIT IN QUADRUPLICATE)

TO

BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE BOARD.



ARM 36.22.1003
ARM 36.22.1004
ARM 36.22.1013
ARM 36.22.1301
ARM 36.22.1306
ARM 36.22.1309

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill *		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	X
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

September 14, 19 92

Following is a {notice of intention to do work / report of work done} on land {~~XXXXX~~ / leased} described as follows:

LEASE TYPE Private (Private, State, Federal, Indian) LEASE Huber 5

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 5 SW NE 10 (m. sec.) T28N (Township) 51E (Range) Principal (Meridian)

The well is located 1980 ft. from {N / ~~S~~} line and 1420 ft. from {E / ~~W~~} line of Sec. 10

* For notice of intention to drill, write the API# or the well name of another well on this lease if one exists.

LOCATE WELL SITE ACCURATELY ON PLAT ON BACK OF THIS FORM.

The elevation of the ground or K.B. above the sea level is

READ CAREFULLY **DETAILS OF PLAN OF WORK** READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings, cementing points, and all other important proposed work, particularly all details of Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Perforated 6421'-23', swabbed 9 bbls per hour 100% water. Set CIBP at 6400'.
Perforate 5185'-87'. This was a mistake and was shot 1000' to high. Swabbed 1 BPH 100% water.
Perforate 6185'-87' and acidized with 250 gallons 15% acid. Swabbed 20 bbls per hour 100% water.

This well is currently temporarily abandoned with plans to convert it to a salt water disposal well.

Approved subject to conditions on reverse of form

Date SEP 17 1992 Original Signed By

By James W Halvorson, Petroleum Geologist
District Office Agent Title

Company Murphy Oil USA, Inc.

By Raymond Reed

Title District Manager

Address Box 547, Poplar, MT 59255

BOARD USE ONLY
API WELL NUMBER
25 01815 21 10214
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the appropriate District for approval.
DRILLING PERMIT EXPIRES SIX MONTHS FROM DATE OF APPROVAL.

Form No. 2R4-8

(SUBMIT IN QUADRUPLICATE)

TO

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE BOARD.

BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

BILLINGS OR SHELBY

1992 SEP 21 AM 9:00

ARM 36.22.307 ARM 36.22.1003
ARM 36.22.601 ARM 36.22.1004
ARM 36.22.602 ARM 36.22.1013
ARM 36.22.603 ARM 36.22.1301
ARM 36.22.604 ARM 36.22.1306
ARM 36.22.605 ARM 36.22.1309

SUNDRY NOTICES AND REPORT OF WELLS

RECEIVED
MONTANA STATE OFFICE
BILLINGS, MONTANA

Notice of Intention to Drill *		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	X
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

September 14, 1992

Following is a {notice of intention to do work / report of work done} on land {~~owned~~ / leased} {described as follows:

LEASE TYPE Private (Private, State, Federal, Indian) LEASE Huber 5

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 5 SW NE (m. sec.) 10 T28N (Township) 51E (Range) Principal (Meridian)

The well is located 1980 ft. from {N ~~S~~} line and 1420 ft. from {E ~~W~~} line of Sec. 10

* For notice of intention to drill, write the API# or the well name of another well on this lease if one exists

LOCATE WELL SITE ACCURATELY ON PLAT ON BACK OF THIS FORM.

The elevation of the ground or K.B. above the sea level is

READ CAREFULLY **DETAILS OF PLAN OF WORK** READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings, cementing points, and all other important proposed work, particularly all details of Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Perforated 6421'-23', swabbed 9 bbls per hour 100% water. Set CIBP at 6400'.
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Perforate 6185'-87' and acidized with 250 gallons 15% acid. Swabbed 20 bbls per hour 100% water.

This well is currently temporarily abandoned with plans to convert it to a salt water disposal well.

Approved subject to conditions on reverse of form

Date SEP 17 1992

By _____ _____
District Office Agent Title

Company Murphy Oil USA, Inc.

By Raymond Reed

Title District Manager

Address Box 547, Poplar, MT 59255

BOARD USE ONLY
API WELL NUMBER
25 0185 21102 14
STATE COUNTY WELL

NOTE—Reports on this form to be submitted to the appropriate District for approval.
DRILLING PERMIT EXPIRES SIX MONTHS FROM DATE OF APPROVAL.

Form 20
Rev. 8-92

Submit In Quadruplicate To:
Montana Board of Oil and Gas Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

ARM 36.22.307
ARM 36.22.605
ARM 36.22.1308

Notice of Intent to Change Operator

The undersigned Transferor hereby notifies the Board of Oil and Gas Conservation of its intention to transfer ownership and/or operation of the following wells to the undersigned Transferee:

Lease Name: Huber

Lease type: (Private, State, Federal, Indian) Private

County: Roosevelt

Field name: East Poplar

Description of wells: (Include official well name and number as reflected on Board of Oil & Gas Conservation records, API well number, and exact location of the well including quarter-quarter section, footage measurements, Section, Township, and Range.)

Huber No. 1, Huber No. 2, Huber No. 3, Huber No. 4-A, and Huber No. 5-D
See attached sheet for information
Effective change of owner/operator from Murphy Exploration and Production Company to

Transferor's Statement:
I hereby designate the Transferee named herein as the owner and/or operator of record of the above described well(s). I acknowledge that the Transferor continues to be responsible for said well(s) and all associated equipment and facilities until such time as this transfer is approved by of the Montana Board of Oil and Gas Conservation. I certify that the information contained herein is true and correct:

Company: Murphy EXPRO
Street Address: 131 South Robertson Street
P.O. Box: Box 61780
City, State, ZIP: New Orleans, LA 70161-9969
Signed:
Print Name: Sidney W. Campbell
Title: Manager Onshore Operations
Telephone: (504) 561-2594

Transferee's Statement:
I hereby accept the designation of operator/owner for the above described well(s). I understand that this transfer will not be approved until the Transferee has complied with the Board's bonding requirements. I acknowledge that under Section 82-11-101 MCA, the Transferee herein is responsible for the costs of proper plugging and restoration of the surface of the well(s) described above. I certify that the information contained herein is true and correct:

Company:
Street Address:
P.O. Box:
City, State, ZIP:
Signed:
Print Name:
Title:
Telephone: ( )

BOARD USE ONLY

Approved _____ Date

_____ Name _____ Title

Oper. No. Bond No.

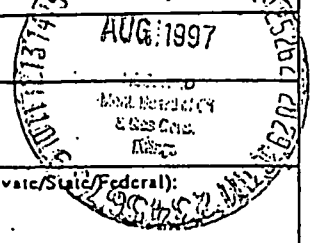
Field Office Review	Date	Initial
Inspection		
Records Review		
Operations		

Oper. No. Bond No.

Form 2
Rev. 8-92

Submit In Quadruplicate To:
Montana Board of Oil and Gas Conservation
Billings or Shelby Office

ARM 36.22.307, 1003, 1004, 1011, 1013, 1103, 1222, 1301, 1306, and 1309



Sundry Notices and Report of Wells

Operator
Murphy Exploration & Production Company

Address
P.O. Box 547

City Poplar State Mt Zip Code 59255

Telephone Number (406) 768-3612 Telefax Number (406) 768-5497

Lease Name: Huber

Lease Type (Private/State/Federal): Private

Well Number: No. 5

Unit Agreement Name: N.A.

Field Name or Wildcat: East Poplar Unit

Location of well (1/4-1/4 section and footage measurements):
SW NE Section 10, T28N, R51E
1980' from the North line and 1420' from the East line
If directionally or horizontally drilled, show both surface and bottom hole locations)

Section, Township, and Range: Sec. 10, T28N, R51E

API Number: 25 | 0 | 8 | 5 | 2 | 1 | 0 | 2 | 4 |
State County Well

Well Type (oil, gas, injection, other): S.W. Injection

County: Roosevelt

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	☐	Subsequent Report of Mechanical Integrity Test	☐
Notice of Intention to Run Mechanical Integrity Test	☐	Subsequent Report of Stimulation or Chemical Treatment	☐
Notice of Intention to Stimulate or to Chemically Treat	☐	Subsequent Report of Perforation of Cementing	☐
Notice of Intention to Perforate or to Cement	☐	Subsequent Report of Well Abandonment	☐
Notice of Intention to Abandon Well	☐	Subsequent Report of Pulled or Altered Casing	☐
Notice of Intention to Pull or Alter Casing	☐	Subsequent Report of Drilling Waste Disposal	☐
Notice of Intention to Change Well Status	☐	Subsequent Report of Production Waste Disposal	☐
Supplemental Well History	☐	Subsequent Report of Change in Well Status	☐
Other (specify) Convert to salt water disposal well	XX	Subsequent Report of Gas Analysis (ARM 36.22.1222)	☐
	☐		☐

Describe Proposed or Completed Operations:
Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

It is proposed to convert the Huber No. 5 well into a disposal well. The injection intervals are Mission Canyon perforations at 6185-6187', 6421-6423' and Nisku perforation at 7242-7264. 2-7/8" tubing will be run with injection packer set at a depth no higher than 100' above the top of the Mission Canyon perforation. EPA permit has been applied for and approved EPA Permit No. MT2779-04278

BOARD USE ONLY

Approved OCT 22 1997
Date

Original Signed By
George C. Hudak, UIC Director
Name Title

The undersigned hereby certifies that the information contained on this application is true and correct:

August 19, 1997 Raymond Reede
Date Signed (Agent)

Raymond Reede District Manager
Print Name & Title

Form 2
Rev. 8-92

Submit In Quadruplicate To:
Montana Board of Oil and Gas Conservation
Billings or Shelby Office

ARM 36.22.307, 1003, 1004, 1011, 1013, 1103, 1222, 1301, 1306, and 1309

Sundry Notices and Report of Wells

Operator
Murphy Exploration & Production Company

Address
P.O. Box 547

City: Poplar, State: Mt Zip Code: 59255

Telephone Number (406) 768-3612 Telefax Number (406) 768-5497

Lease Name: Huber

Lease Type (Private/State/Federal): Private

Well Number: No. 5-D

Unit Agreement Name: East Poplar Unit

Field Name or Wildcat: East Poplar Unit

Section, Township, and Range: Sec. 10, T28N, R51E

County: Roosevelt

Location of well (1/4-1/4 section and footage measurements):
SW NE Section 10, T28N, R51E
1980' from the North line and 1420' from the East line
(If directionally or horizontally drilled, show both surface and bottom hole locations)

API Number: 25 [redacted] 0 | 8 5 [redacted] 2 | 1 | 0 | 2 | 4 [redacted]
State County Well

Well Type (oil, gas, injection, other): S.W. Injection

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	☐	Subsequent Report of Mechanical Integrity Test	☐
Notice of Intention to Run Mechanical Integrity Test	☐	Subsequent Report of Stimulation or Chemical Treatment	☐
Notice of Intention to Stimulate or to Chemically Treat	☐	Subsequent Report of Perforation or Cementing	☐
Notice of Intention to Perforate or to Cement	☐	Subsequent Report of Well Abandonment	☐
Notice of Intention to Abandon Well	☐	Subsequent Report of Pulled or Altered Casing	☐
Notice of Intention to Pull or Alter Casing	☐	Subsequent Report of Drilling Waste Disposal	☐
Notice of Intention to Change Well Status	☐	Subsequent Report of Production Waste Disposal	☐
Supplemental Well History	☐	Subsequent Report of Change in Well Status	☐
Other (specify) _____	☐	Subsequent Report of Gas Analysis (ARM 36.22.1222)	☐
_____	☐	~~Salt Water Disposal Well~~	☒

Describe Proposed or Completed Operations:
Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

INFORMATION PURPOSE ONLY

Perforated from 6185-6187, 6421-6423, 7240-7250, 7260-7269 and 7272-7276'. Ran 6140' of 2-7/8" tubing, set packer at 6140'. Acidized Nisku formation with 5000 gallons 15% hydrochloric acid, 75 gallons HAI-85M, 50# Ferchek A and 50 gallons Sperse All M

Ran MIT on 11-17-97 - pased.

BOARD USE ONLY

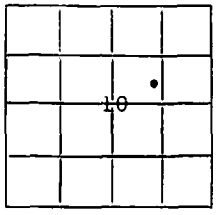
Approved DEC 19 1997
Date
Original Signed By
George C. Hudak, UIC Director
Name Title

The undersigned hereby certifies that the information contained on this application is true and correct:

December 9, 1997 Raymond Reede
Date Signed (Agent)

Raymond Reede District Manager
Print Name & Title

LOCATE WELL CORRECTLY



Form No. 4
(Gen. Rule 206.3 & 231)

(SUBMIT IN TRIPLICATE)
TO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

LOG OF WELL

Company E. A. Polumbus, Jr. Lease Huber Well No. 5

Address 220 C. A. Johnson Bldg. Denver, Colorado 80202 Field (or Area) East Poplar

The well is located 1980' ft. from (N) line and 1420' ft. from (E) line of Sec.

Sec. 10 ; T. 28N ; R. 51E ; County Roosevelt ; Elevation 2092 ([redacted] R.B. [redacted])

Commenced drilling November 26, 1968; Completed February 6, 1969

The information given herewith is a complete and correct record of the well. The summary on this page is for the condition of the well at the above date.

Completed as Oil Well
(oil well, gas well, dry hole)

Signed D. J. Low

Title Petroleum Engineer

Date February 18, 1969

IMPORTANT ZONES OF POROSITY

(denote oil by O, gas by G, water by W; state formation if known)

From 3225 to 3242 (W) Dakota		From	to
From 4872 to 4910 (O?) Heath		From	to
From 5458 to 5686 (O) Charles		From	to
From 7242 to 7267 (O) Nisku		From	to

CASING RECORD

Size Casing	Weight Per Ft.	Grade	Thread	Casing Set	From	To	Sacks of Cement	Cut and Pulled from
8-5/8	24	J-55	8 Rd.	1028	Surface	1028	575	-
5-1/2	14 and 17	J-55 & N-80	8 Rd.	7307	Surface	7307	600	-

TUBING RECORD

Size Tubing	Weight Per Ft.	Grade	Thread	Amount	Perforations
2-7/8	6.5	J-55	8 Rd.	7106	Open end

COMPLETION RECORD

Rotary tools were used from Surface to 7307

Cable tools were used from to

Total depth 7307 ft.; Plugged back to 7272 T.D.; Open hole from to

PERFORATIONS			ACIDIZED, SHOT, SAND FRACED, CEMENTED			
Interval From	Interval To	Number and Size and Type	Interval From	Interval To	Amount of Material Used	Pressure
7262	7264	6-28 gm Jets	7262	7264	250 gal. 15% HCL	1600 Max. to 700

(If P&A show plugs above)

INITIAL PRODUCTION

Well is producing from Nisku (pool) formation.

I. P. 51.4 barrels of oil per 24 hours flowing on 14/64" ch.
(pumping or flowing)

T. S. T. M. Mcf of gas per hours.

475 barrels of water per 24 hours, or % W.C.

(OVER)

INITIAL PRODUCTION—(Continued)

Initial 10-day average production 51.4 (bbl./day) (if taken)
Pressures (if measured): Tubing 360 psi flowing; 375 psi shut-in
Casing Packer psi flowing; Packer psi shut-in
Gravity 42 ° API (corrected to 60° F.)

DRILL STEM TESTS

D.S.T. No.	From	To	Tool Open (Min.)	Shut-in	F.P.	S.I.P.	Recovery	Cushion
1	4876	4910	90	180 min.	805	2365	200' HO & GCM, 180' sli O & GCM, 180' muddy wtr w/tr. oil & gas, 1085' MG &OCW	none
2	7236	7250	60	90 min.	1225	3587	496' sli M & WCO, 94' O & MCW, 2222' salt water	none

LOGS RUN

Type	Intervals From	Intervals To	
Schl. - Laterolog - 3	1028	7302	
Sidewall Neutron Porosity	4800	7306	
Microlaterolog	4850	4970	5150-5250, 6060-7306
Formation Density	4850	4970	5150-5250, 6060-7306
Moveable Oil Plot	4850	4970	5150-5250, 6060-7306
Perf-O-Log Gamma Ray-Neutron	4800	5000	6090-7271
Cement Bond	4740	7268	

FORMATION RECORD

From	To	SAMPLE AND CORE NO. AND DESCRIPTION			Top of Formation
		FORMATION TOPS			
		Greenhorn	2338	(Lime and Shale)	
		Newcastle	2901	(Sand)	
		Dakota	3225	(Sand)	
		Lakota	3546	(Sand and Shale)	
		Morrison	3612	(Shale)	
		Swift	3658	(Sand and Shale)	
		Rierdon	4080	(Argillaceous Shale)	
		Piper	4253	(Calcareous Shale and Lime)	
		Nesson	4472	(Limestone)	
		Spearfish	4598	(Silty Shale)	
		Amsden	4696	(Dolomitic Shale)	
		Heath	4872	(Shale and Sand)	
		Charles	5372	(Argillaceous Lime)	
		Ratcliffe (44)	5768	(Limestone)	
		Mission Canyon	5792	(Limestone)	
		Lodgepole	6495	(Argillaceous Limestone)	
		Bakken	7104	(Calcareous Shale)	
		Three Forks	7134	(Dolomitic Limestone)	
		Nisku	7217	(Dolomite)	
		Porosity	7242	(Dolomite)	
		Duperow	7302	(Limestone)	
		Total Depth	7307		

TABLE OF CONTENTS

FORMATION TOPS - SCHLUMBERGER

Cretaceous		
Greenhorn	2338	(- 246)
Belle Fourche	2452	(- 360)
Mowry	2688	(- 596)
Newcastle	2901	(- 809)
Skull Creek	2965	(- 873)
Basal Colo. silt	3120	(-1028)
"Dakota"	3225	(-1133)
Fuson	3301	(-1209)
"Lakota"	3546	(-1454)
Jurassic		
Morrison	3612	(-1520)
Swift	3658	(-1566)
Vanguard mem	3902	(-1810)
Rierdon	4080	(-1988)
Piper fm	4253	(-2161)
Bowes mem	4253	(-2161)
Firemoon mem	4332	(-2240)
Tampico mem	4385	(-2293)
Nesson fm	4472	(-2380)
Kline meme	4472	(-2380)
Picard mem	4526	(-2434)
Poe mem	4551	(-2459)
Triassic		
Spearfish	4598	(-2506)
Pennsylvanian		
Amsden	4696	(-2604)
Mississippian		
Big Snowy Group		
Heath fm	4822	(-2730)
Heath Sand	4872	(-2780)
Otter fm	4973	(-2881)
Kibbey fm		
Upper mem	5147	(-3055)
Carbonate mem	5277	(-3185)
Lower mem	5295	(-3203)
Madison Group		
Charles fm	5372	(-3280)
"A Zone	5458	(-3366)
"Ax" Zone	5489	(-3397)
"B1x" Zone	5588	(-3496)
"B1" Zone	5608	(-3516)
"B2" Zone	5626	(-3534)
"B3" Zone	5646	(-3554)
"B4" Zone	5680	(-3588)
Ratcliffe (44)	5768	(-3676)
Mission Canyon fm	5792	(-3700)
Correl pt "A"	5828	(-3736)
Lodgepole fm	6495	(-4403)

Devonian		
Bakken	7104	(-5012)
Three Forks	7134	(-5042)
Nisku	7217	(-5125)
Porosity	7242	(-5150)
Duperow	7302	(-5210)

WELL HISTORY

Date 1968	Operation	Depth From	Depth To	Hole Size	Weight on Bit	Pump Pressure	Rotary RPM	Hours	Remarks
11-25	Rigging up							8	
11-26	Rigging up							14	
	Drilling	0	80	12-1/4	15,000	500	150	2	Spudded 10 PM, 11-26-68
11-27	Drilling	80	1031	12-1/4	15,000	500	150	15	Hole dev: 0° @ 140'
	Circulating		1031					1/2	Prep to run casing.
	Running & Cementing Surf. csg.							2-1/2	Ran 32 jts 8-5/8" 24# J-55 csg cem @ 1028' KB w/575 sx reg cem w/3% Calcium Chloride and 1/4 sx Flo Seal. Plug down at 6 PM. Good returns.
	W.O.C.							6	
11-28	W.O.C.							2	Nippled up.
	Drilling	1031	3085	7-7/8	20-35,000	1000	180-200	22	Tested BOP @ 600#, picked up DC, drld cement 2 hrs, drld ahead. Hole dev: 3/4° @ 2010', 1° @2847'.
11-29	Drilling	3085	3614	7-7/8	35,000	800-1000	150	18	Hole dev: 1-1/4° @3384'.
	Reaming	3584	3614	7-7/8	2-4,000	1000	100	1/2	Hole out of gauge.
	Drilling	3614	3786	7-7/8	35,000	1000	150	5-1/2	
11-30	Drilling	3786	4418	7-7/8	40,000	900-1000	150	24	Hole dev:1-1/4° @ 4014'.
12-1	Drilling	4418	4775	7-7/8	40-45,000	900-1000	120	24	Hole dev: 1-1/2° @4480'.
12-2	Drilling	4775	4910	7-7/8	50,000	900-1000	120	12-1/2	Includes trip out to test - bit bald.
	Circulating		4910					1	Prepare to test.
	Testing	4876	4910					10-1/2	DST #1 - Valid Test.
12-3	Testing							1	Laydown & load out test tool.
	Drilling	4910	5070	7-7/8	50,000	1000	120	23	Spent 1/2 hr reaming to bot on 4910' trip in.
12-4	Drilling	5070	5257	7-7/8	55,000	1000	90	24	
12-5	Drilling	5257	5434	7-7/8	55,000	1000	90-120	24	Hole dev: 1-3/4° @ 5392'.

WELL HISTORY (Con't)

Date	Operation	Depth From	Depth To	Hole Size	Weight on Bit	Pump Pressure	Rotary RPM	Hours	Remarks
1968									
12-6	Drilling	5484	5700	7-7/8	55,000	1000	100-120	24	
12-7	Drilling	5700	5832	7-7/8	55,000	1000	90-110	24	
12-8	Drilling	5832	5947	7-7/8	36-55,000	1000	90	19	Lost partial circ thru Charles "pay zones". Hole dev: 1-1/4° @ 5930'.
	Waiting							4-1/2	Wait on arrival new shock sub.
12-9	Drilling	5947	6150	7-7/8	40,000	1000	48	23	
	Repairing							1	Wprk on pump.
12-10	Drilling	6150	6379	7-7/8	40,000	1000-1100	48	24	
12-11	Drilling	6379	6582	7-7/8	40-55,000	1000-1100	48-60	24	Hole dev: 1° @ 6522'.
12-12	Drilling	6582	6743	7-7/8	55,000	1000-1100	60-120	24	
12-13	Drilling	6743	6908	7-7/8	55,000	1000-1100	65-80	21	
	Repairing							3	Replace stand pipe.
12-14	Drilling	6908	7068	7-7/8	55,000	1000	60-75	24	
12-15	Drilling	7068	7195	7-7/8	55,000	1000	75-80	24	
12-16	Drilling	7195	7250	7-7/8	55,000	1100	70	12	Includes trip out to test and running in new bit run in after tst.
	Circulating		7250					2-1/2	Prepare to test.
	Testing	7236	7250					9-1/2	DST #2 - Valid Test.
12-17	Drilling	7250	7300	7-7/8	55,000	1100	70	8-1/2	Includes trip out to log. Drld off wt while circulating.
	Circulating							2-1/2	Prepare to log.
	Waiting		7300					3	Schlumberger truck not working.
	Logging		7300					10	Running Schlumberger logs.
12-18	Logging		7300					8-1/2	Finished running logs, loaded out Schlumberger.
	Prepare to run csg.							11-1/2	Trip in hole, circ 2 hrs, came out laying dn, rig up to run cs
	Running Csg.							3	Ran 216 jts (7,294' including float collar & shoe) 5-1/2" csg 14 & 17# J-55 & N80, long and short T & C. Ran 5 jts (154.92'

WELL HISTORY - (Con't)

Date 1968	Operation	Depth From	Depth To	Hole Size	Weight on Bit	Pump Pressure	Rotary RPM	Hours	Remarks
									N-80 17# on bottom, followed by 148 jts (5,219.98') J-55 17#, followed by 53 jts, (1,597.80') J-55 14# and 10 jts (319.01') N-80 #17 on top. Top jt N-80 approx 6" below slips landing jt J-55 14#.
12-19	Running Csg.							4	Finished running csg. Landed top collar 12' below rotary table (tagged bottom).
	Circulating							2	Circulated with casing on bot.
	Cementing							2	Cemented @ 7307' KB w/600 sx at which 550 sx was 50-50 Poz with 2% gel 10% salt, .75% D-65, 12-1/2#/sk gilsonite and 1/4 sk cellophane flakes. Tailed in w/50 sx neat type C wi 7/10 gal latex per sk. Plug dow 5 AM, 12-19-68, bumped w/2000#. Preceeding the cem was 10 bbls fresh wtr, followed by 500 gal CW-7 chem wash, then 10 bbls fresh wtr. Cement displaced at 6.5 to 8 BPM initially then reduced gradually at end of pum ping to avoid lost circ in Charles.
	Rig down							2	Removed BOP, set slips w/10,000 over wt of csg. Rig released 10 AM, 12-19-68.

DRILLING EQUIPMENT

Contractor:	Signal Drilling Company, Inc.
Rig:	Unit Rig U-36A 600 HP Double Drum Drawwork w/2 engine compound and Parkersburg 15" Double Hydromatic Brake.
Power:	2 - Allis Chalmers Model 25000 Turbocharged diesel engines with 2 twin disc torque converters. 600 HP @ 1800 rpm.
Pumps:	1 - Emsco D-500, 15" stroke, 5-1/2" liners, 60 spm, powered by GMC 671 twin engines, 278 continuous JP @ 1800 rpm. 1 - Emsco D-175, 12" stroke, 6" liners, 60 spm, powered by GMC 671 twin engines 278 continuous HP @ 1800 rpm.
Mast:	127' Lee C. Moore 450,000# API capacity.
Drill Pipe:	4-1/2" Grade 3
Drill Collars:	26 - 2-1/8" x 6-1/8" (774')

Pusher:	B.J. Groves
Drillers:	C. A. Wood K. Rice R. Schroeder

BIT RECORD

Number	Size	Make	Type	Jet Size	Depth From	Depth To	Feet	Hours
ls-rr	12-1/4	Hughes	OSC J		0	1031	1031	12
1	7-7/8	Smith	DTJ	2-14/32 1-12/32	1031	2847	1816	14
2	7-7/8	Smith	DTJ	2-14/32 1-12/32	2847	3384	537	5
3	7-7/8	Smith	DGTJ	2-14/32 1-12/32	3384	3614	230	8-1/2
4	7-7/8	Security	T6 J	2-12/32 1-14/32	3614	4014	400	14
5	7-7/8	Smith	DG	2-12/32 1-14/32	4014	4480	466	15
6	7-7/8	Smith	V1J	2-12/32 1-14/32	4480	4783	303	17-1/2
7	7-7/8	Security	S4TJ	2-12/32 1-14/32	4783	4910	127	6-1/2
8	7-7/8	Smith	V2J	2-12/32 1-14/32	4910	4960	50	6
9	7-7/8	Security	M4LJ	2-12/32 1-14/32	4960	5090	130	13-1/2
10	7-7/8	Security	M4NJ	2-12/32 1-14/32	5090	5238	148	12-1/2
11	7-7/8	Security	M4NJ	2-12/32 1-14/32	5238	5392	154	16-1/2
12	7-7/8	Security	M4NJ	2-12/32 1-14/32	5392	5538	146	11-1/2
13	7-7/8	Security	M4NJ	2-12/32 1-14/32	5538	5747	209	18-1/2
14	7-7/8	Hughes	OWV J	2-12/32 1-14/32	5747	5825	78	11
15	7-7/8	Hughes	OWC J	2-12/32 1-14/32	5825	5930	105	13-1/2

BIT RECORD - Con't

Number	Size	Make	Type	Jet Size	Depth From	Depth To	Feet	Hours
16	7-7/8	Security	MBJ	3-12/32	5930	6522	592	24
17	7-7/8	Hughes	WD7J	3-12/32	6522	6644	122	14
18	7-7/8	Hughes	OWCJ	3-7/32	6644	6743	99	8-1/2
19	7-7/8	Hughes	OWCJ	3-7/32	6743	6870	127	12-1/2
20	7-7/8	Security	M4LJ	3-7/32	6870	6975	105	11-1/2
21	7-7/8	Security	M4LJ	3-7/32	6975	7081	106	10-1/2
22	7-7/8	Smith	T2J	3-7/32	7081	7181	100	11-1/2
23	7-7/8	Reed	YHCJ	3-7/32	7181	7250	69	7-1/2
24	7-7/8	Hughes	OWCJ	3-7/32	7250	7300	50	4-1/2

MUD DATA

Mud Properties

Mud Additives

Date	Weight	Viscosity sec.	Water Loss cc	Salinity ppm	Mica	Defoamer	Klay	Preservative	RD III	Starch	Brine Gel	Oil
1968												
11-26												
11-27		40-50										
11-28	S A L T	W A T E R										
11-29	O I L &	S A L T	W A T E R									60
11-30	9.4-10.0	34-43	6-15	107,000		1	3	5	7	29	10	40
12-01	9.7-10.2	37-45	6-12	115,500		1	2	2	4	16		20
12-02	10.1-10.2	40-42	6-12	117,000					3	6		
12-03*	9.8-10.2	37-43	8-18	148,500			2	1	4	12		20
12-04	10.1-10.3	42-46	4-12	145,000			3	2	4	12		
12-05	10.0-10.3	38-45	6-14	142,000			5	2	5	20		
12-06	10.3-10.5	40-45	6-16	186,500	8		2		2	17		
12-07*	10.3-10.5	42-44	8-16			1		1	5	12		30
12-08*	10.0-10.5	37-44	198,000		21	2	4	2	2	18	6	20
12-09	10.0-10.2	38-41	6-20	200,000		1	4	1	3	23	8	20
12-10	10.0-10.2	38-41	8-12	214,500				1	2	14	6	
12-11	10.1-10.3	38-40	6-13	215,000				1	2	12		20
12-12	10.3	39-40	8-16				3	1	2	16	5	
12-13	10.2	41-44	5-11	217,500					1	6		
12-14	9.9-10.2	38-46	8-15	225,000		1	11	2	1	20	10	
12-15	10.0-10.2	42-53	7-17		10	1	4	2	2	25	15	
12-16	9.7-10.0	40-44	7- 9							5	10	
12-17	9.8- 9.9	45-48	4- 6	-								
12-18	9.9	37	12.5	225,000								
12-19												
				Totals	39	8	43	23	49	263	70	230

* Additions:

12-03 1 sx Soda Ash
12-07 1 sx Soda Ash
12-08 1 sx Fiber

Drill Stem Test Data Sheet

Operator: E. A. Polumbus + Ladd Petr. Well: #5 Huber

Location: SW NE 10-28N-51E Elev: 2092 KB Date: 12-2-68

Test Number: 1 Type: Conventional Interval: 4876-4910 drlrs depths, 4878-4911 Schl depths

Testing Company: Johnston Testers Name of Tester: Fiscus

Hole Size: 7 7/8" Total Depth: 4910' Formation: "Heath" SS

Packer Size: 6 3/4" Type: Bristol Depth: 4872

Size: 6 3/4" Type: Bristol Depth: 4876

Size: ______ Type: ______ Depth: ______

Size: ______ Type: ______ Depth: ______

Type and Size Tool: MFE

Cushion: None Recorders at: T-305 @ 4884; T-230 @ 4895

Length and Size Perfs: 19' Choke Sizes: 3/4" surface, 15/16" bottom hole

1st Open: 5 1st Blow: 12" in 4 min, steady 1st Shut In: 60

2nd Open: 90 2nd Blow: 12" in 4 min, GTS 83 min 2nd Shut In: 180

3rd Open: none 3rd Blow: — 3rd Shut In: none

Recovery: 1645' total fluid consisting of 200' HOGCM (70% oil), 180' wtry mud sl. O & G cut (2% oil), 180' muddy wtr w/trc O & G, 1085' wtr w/trc mud, G + O.

Pressures (lb/sq in)	Initial Top	Initial Bottom	Intermediate Top	Intermediate Bottom	Final Top	Final Bottom
Hydrostatic	2634	2640			2656	2638
Flow	39/168	83/209	—	—	226/804	226/805
Shut In	2494	2505	—	—	2350	2365

Remarks: Valid test. MFE chamber rec. 15 cu ft gas @ 60#, 1660 cc wtr, 660 cc oil (38.2° @ 84°)

Drill Collars: Length 726 ft. Size: 2 1/4 id Capacity: .005 bbl/ft. Rec. 3.6 bbls.

Drill Pipe: Amount of fillup 919 ft. Size: 3.8 id Capacity: .014 bbl/ft. Rec. 12.9 bbls.

Mud Weight 10.1 lb/gal. Calc. Hydrostatic Mud Pressure ______ Total Rec. 16.5 bbls.

GOR ______ Est. ft. of net pay for calculations: 12 BHT: 225 °F

Calculations:

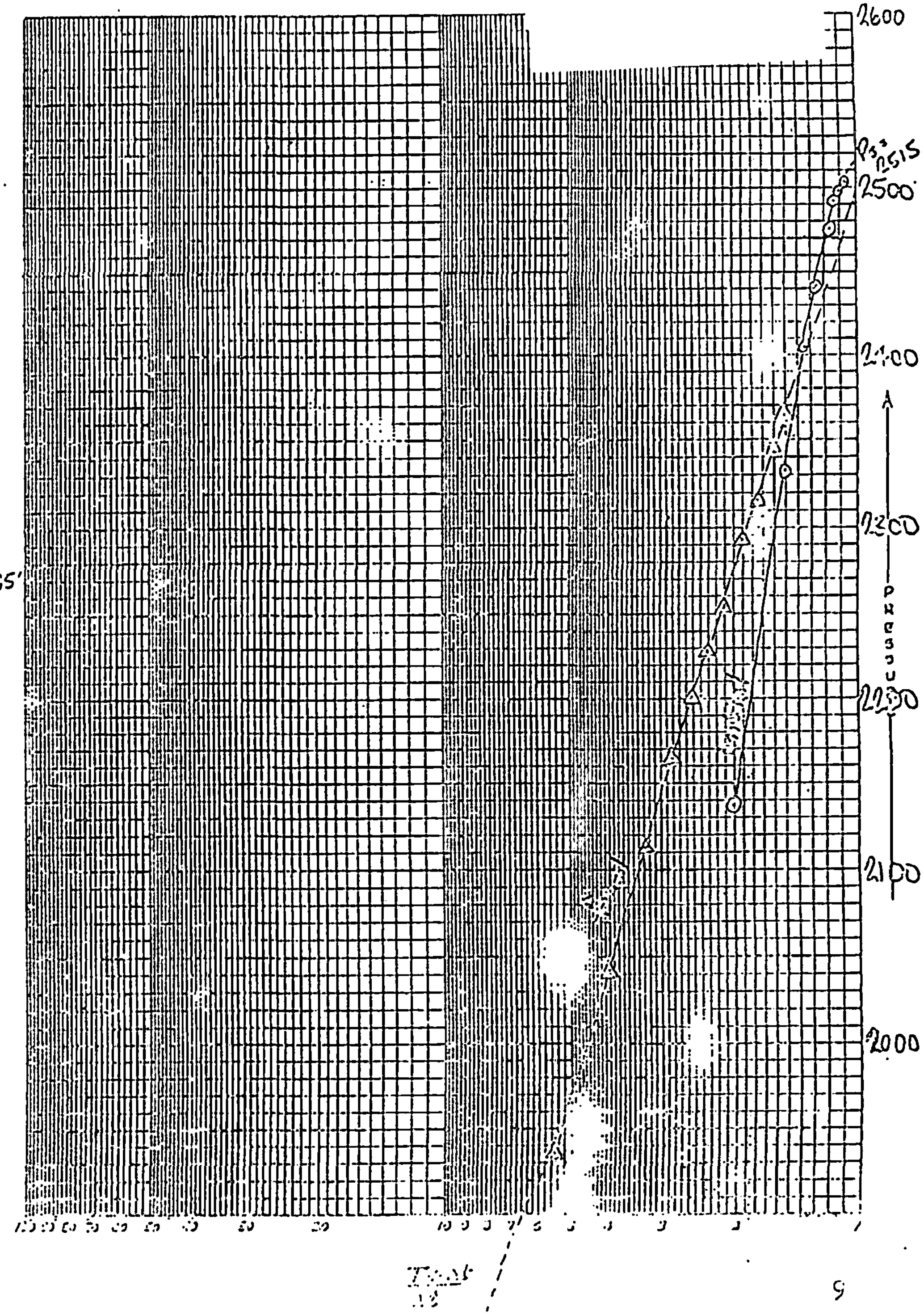
Est. Production Rate = bbl. fluid rec. per hr x 24 = 264 b/D

Est. Effective Perm. = (Q x BPFD x Visc in cp) / ((P* − Pf)(feet of zone)) (using .5 cp visc) = 2.4 md.

Est. Damage Ratio = (... (P* − Pf)) / (P* − Pf) = none (< 1)

Est. Prod. Rate w/no Formation Damage = EPR x 7DR = 264 B/D

Potentiometric surface (P* x 2.309) above reservoir depth = 3000 ft.



DRILL STEM TEST DATA SHEET

Operator: E.A. Columbus + Ladd Petr. Well: #5 Huber

Location: SW NE 10-28N-5IE Elev: 2092 KB Date: 12-16-68

Test Number: 2 Type: Conventional Interval: 7239-7253 Schl depths 7236-7250 dHr's depths

Testing Company: Johnston Testers Name of Tester: Olson

Hole Size: 7 7/8" Total Depth: 7250 Formation: Nisku-1st Porosity

Packer Size: 6 3/4" Type: Bobtail Depth: 7225

Size: 6 3/4" Type: Bobtail Depth: 7236

Size: _____ Type: _____ Depth: _____

Size: _____ Type: _____ Depth: _____

Type and Size Tool: MFE

Cushion: NONE Recorders at: T-273 @ 7230'; J-106 @ 7242'

Length and Size Perfs: 5' Choke Sizes: 3/4" surface, 15/16" bottom hole

1st Open: 3 1st Blow: 12" wtr blow in 3 min 1st Shut In: 45

2nd Open: 60 2nd Blow: 12" wtr blow in 9 min, remained std, no GTS. 2nd Shut In: 120

3rd Open: none 3rd Blow: _____ 3rd Shut In: none

Recovery: 2812' TOTAL FLUID CONSISTING OF 496' MUD CUT OIL (90% OIL, 8% mud, 2% WTR), 94' OIL CUT MUDDY WTR (25% OIL, 75% MCW), 2222' SALT WATER.

	T Initial J		Intermediate		T Final J	
	Top	Bottom	Top	Bottom	Top	Bottom
Pressures: Hydrostatic (lb/sq in)	3716	3696			3749	3723
Flow:	46/120	157/253	—	—	172/222	188/225
Shut In:	3583	3572	—	—	3605	3587

Remarks: VALID TEST. MFF CHAMBER REC .04 CU FT GAS @ 80#, 1780 cc WTR, 580 cc OIL (43° @ 84°)

Drill Collars: Length 766 ft. Size: 2¼ id Capacity: .005 bbl/ft. Rec 3.83 bbls.

Drill Pipe: Amount of Fillup 2046 ft. Size: 3.8 id Capacity: .014 bbl/ft. Rec 28.67 bbls.

Mud Weight: 10.4 lb/gal. Calc. Hydrostatic Mud Pressure _____ Total Rec 32.5 bbls.

GOR: _____ Est. ft. of net pay for calculations: 11 BHT: 196 °F

Calculations:

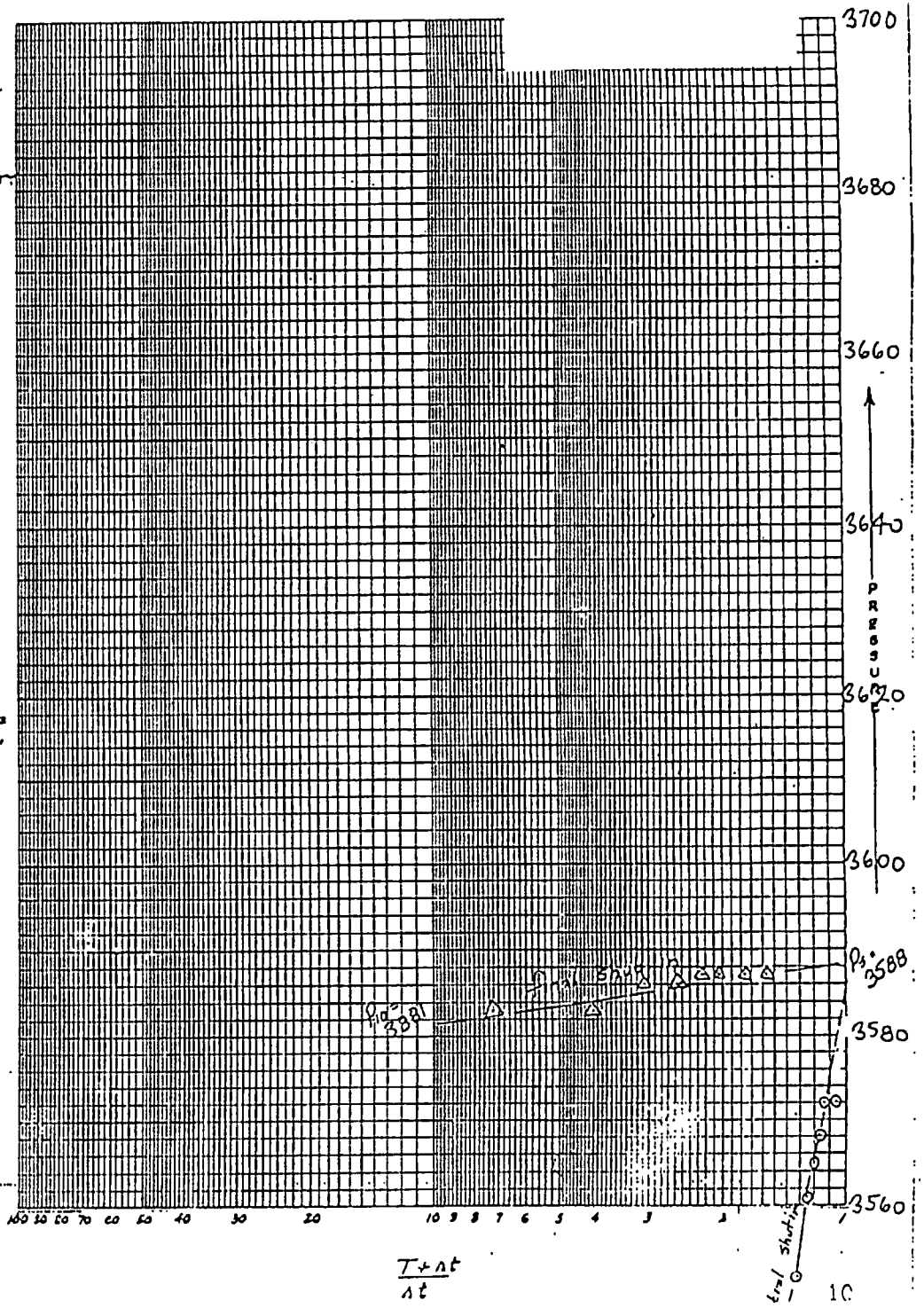
Est. Production Rate = bbl. fluid rec. per hr. x 24 = 780 B/D

Est. Effective Perm. (using .35 cp vis.) = $\frac{163 \times \text{BPPD} \times \text{Visc. in cp}}{(P_s - P_{10})(\text{feet of zone})}$ = 575 md.

Est. Damage Ratio = $\frac{.183 (P_s - \text{IFP})}{P_s - P_{10}}$ = 62

Est. Prod. Rate w/no Formation Damage = EPR x EDR = 4850 B/D *

Potentiometric surface = (Ps x 2.309) - sub sea recorder depth = 3100 ft.



Theodore D. Sheldon
Petroleum Consultant

* difficult to assume such a high rate; however a substantial increase over 780 B/D is anticipated.

WATER ANALYSIS (Core Laboratories, Inc.)

	DST #1 Bottom of Rise 4876'-4910'		DST #2 MFE Chamber 7236'-7250'	
Constituents	meq/L	mg/L	meq/L	mg/L
Sodium	732	16,836	2,405	55,315
Calcium	34	672	90	1,800
Magnesium	21	253	24	292
Iron	3	89		TRACE
Barium	0	0	0	0
Chloride	775	27,477	2,503	88,750
Bicarbonate	9	537	7	400
Sulfate	6	300	9	450
Carbonate	0	0	0	0
Hydroxide	0	0	0	0
Resistivity	0.145 ohm-meters @ 77° F CALC.		0.061 ohm-meters @ 77° F CALC.	
Hydrogen Sulfide	ABSENT		ABSENT	
Specific Gravity	1.032 @ 70° F		1.086 @ 71° F	
Total Fluids Dissolved:	46,164 mg/L CALC.		150,607 mg/L CALC.	
pH	6.5 @ 70° F.		6.5 @ 71° F.	

LOG ANALYSIS (Sonic-Resistivity Plots)

Rw = .02 @ BHT

Schlumberger Depths	Resistivity Laterolog	Porosity SNP	Porosity FDC	Porosity TOT	Water Saturation
7243	6.5	11	6	9.5	55
7246	19	11	4	8.5	37
7266	8	15	10	13.5	35
7275	16	9	2	7	50

COMPLETION REPORT

HUBER NO. 5

11-26-68 Spudded 8:00 p.m. 11-26-68 drilling 700'

11-27-68 700' T.D. Surface ran and cemented at 6:00 p.m. 1023.11' of 8-5/8" surface casing. Clean cement to surface.

11-28-68 1250' Drilled out from surface at 5:00 a.m.

11-29-68 3434'

11-30-68 4004'

12-01-68 4480'

12-02-68 4870' Will be testing Heath Sand today.

12-03-68 4959' on trip 2080' Ground Level 2092' RKB

DST No. 1 Heath Zone 4875'-4910' with Johnston MFE tool. Opened tool at 3:40 for 5 min. preflow with 2" of water and increased to 12" in 5 mins. Closed tool in for 1 hour I.S.I. opened tool at 4:45 for flow opened under 1" and increased to 12" at the end of 4 min. Good blow throughout test. Gas to surface in 1 hr. 25 min. Flow 1½ hrs. S.I. at 6:15 pm. S.I. 3 hrs. Total recovery 1645' fluid: 200' heavy oil and gas cut mud, 70% oil, 180' watery drilling mud slightly oil & gas cut, 180' muddy water with trace oil & gas, and 1085' of water with trace mud, oil and gas.

MFE Sample: .15 cu.ft. gas at 60#, fluid 660 cc oil, gravity 38.2 at 84°, 1660 cc water calculated 40% oil and 60% water = 262 BFPD 157 BWPD 105 BOPD. Permeability 4 millidarcys no formation damage.

IH	2627
ISI	2509
IF	74
FSI	2355
FF	247-796
FHS	2627
Temp.	255°

12-04-68 5229' Drilling

12-05-68 5340' Drilling

12-06-68 5538' Drilling

12-07-68 5747' Drilling

12-08-68 5908' Drilling

12-09-68 6010' Drilling Lost circulation at 5910'. Regained full circulation.

12-10-68 6216' Drilling

12-11-68 6470' Drilling

12-12-68 6644' On trip

12-13-68 6794' Drilling

12-14-68 No report

12-15-68 No report

12-16-68 7250' prep to test Nisku

DST No. 2 7236'-50' (Nisku 1st porosity) with Johnston MFE Tool 15/16" bottom choke 3/4" top choke. Opened tool at 1:45 for 3 min. preflow opened under 1" of water and increased to 12" in 3 min. Tool initial S.I. for 45 min. Tool opened at 2:30 under 1" of water and increased to 12" at the end of 10 min. and remained throughout test. Tool final S.I. at the end of 1 hour. No gas to surface. Final S.I. 2 hrs. recovered 2812' fluid broke down as follows: 496', 90% oil, 8% mud, 2% water. Oil gravity 43 API at 84° 94', 25% oil and 75% mud and water 2222' of salt water chl 72,000 PPM.

Oil & Water from D.P.	21% oil	79% water
MFE Tool	24% Oil	76% Water

I. Hydro	3753
ISI	3635
IF	140
FF	1219
FSI	3635
F. Hydro	3753
Temp.	296°

DAILY DRILLING REPORT

Huber #5, SW NE Section 10, T28N, R51E, Roosevelt County, Montana.

12/21/68 Rigging down and moving out rotary tools.

12/22/68 Rigging down and moving out rotary tools.

12/23/68 Waiting on well servicing tools.

12/24/68 Waiting on well servicing tools.

12/25/68 Waiting on well servicing tools.

12/26/68 Perfalog ran line to check bottom; found cement in casing at approximately 7,130'. Waiting on well servicing tools.

12/27/68 Waiting on well servicing tools.

12/28/68 Moved in well servicing tools. Could not rig up because of severe blizzard.

12/29/68 Waiting on blizzard conditions to abate.

12/30/68 Waiting on blizzard conditions to abate.

12/31/68 Rigged up well servicing tools. Running tubing with bit to drill cement out of casing.

1/ 1/69 Drilled cement from approximately 7,130-7,272' (top of cement in collar).

1/ 2/69 Coming out of hole with tubing and bit. Preparing to run cement bond log, collar locator log, and perforate approximately 7,262-64' (in second zone of the Nisku formation).

DAILY DRILLING REPORT

Huber #5, SW NE Section 10, T28N, R51E, Roosevelt County, Montana

1/4/69 (2:30 P.M. Report) Ran cement bond log and found good cement bond opposite Nisku. Ran correlation log and collar log and perforated 7,262-64' with six jet holes. Ran tubing with packer set at 7,102'. Bottom of tubing was 7,257'. Started swabbing. Swabbed fluid level to 2,200' and observed that packer failed. Coming out of hole with tubing at 2:30 P.M. to replace packer.

1/5/69 (7:00 P.M. Report) Finished pulling tubing and reran with packer. Started swabbing at 11:15 A.M. Found fluid level at 800' from surface. Approximately 20' of oil on top of water column. Swabbed to packer depth (7,107') at 3:00 P.M. Shut in from 3:00 P.M. to 4:30 P.M. Fluid filled up 600'. Water with trace of oil. Discontinued swabbing at 4:30 P.M.

1/6/69 (9:00 A.M. Report) Went in with swab at 8:00 A.M. Found fluid at 1,000' from surface with 100 lbs. pressure on tubing. Rate of fillup during night approximately 2.3 barrels per hour, same as rate of entry on previous swab and fillup test. Found approximately 30' of oil on top of water column. Continuing swabbing. Waiting on decision to acidize and/or squeeze off zone.

1/7/69 Pulled tubing, removed anchor from below packer. Reran tubing with packer preparatory to cement squeezing pending results of acid treatment. Ran tubing to near perforations. Spotted 250 gallons, 15% HCl acid. Pulled packer to 7,107' and set. Started pumping acid into formation 10:15 P.M., 1/6/69. Pressure increased immediately to 1,600 lbs., fell suddenly to 700 lbs. Displaced the 250 gallons in 10 minutes at 700 lbs. Shut in and pressure dropped to 200 lbs. Stayed at 200 lbs. from 10:30 to 11:00 P.M. and started increasing gradually. Opened well to Dow tank at 11:00 P.M. Flowed approximately 70 barrels of fluid into Dow tank 11:00 P.M. to 12:30 A.M., 1/7/68. Open flow rate at end of test into Dow tank 80 barrels per hour. Installed 17/64" positive choke and turned into lease test tanks at 12:30 A.M. 12:30 to 3:45 A.M., flowed approximately 25 barrels into tanks. Rate of flow unknown because choke plugged with piece of packer material during this interval. After removing restrictions in choke, hourly total fluid

1/7/69
(Cont.) rates on 17/64" choke were as follows: 3:45-4:45 A.M. 22.17 bbls. (tubing pressure 275#); 4:45-5:45 A.M. 29.11 bbls. (tubing pressure 300#); 5:45-6:45 A.M. 30.34 bbls. (tubing pressure 300#). Percent oil in fluid samples was as follows: 5:15 A.M. - trace; 5:30 A.M. - 7%; 5:45 A.M. - 9%; 6:00 A.M. - 8%; 6:15 A.M. - 9%; 6:30 A.M. - 12%; 6:45 A.M. - 12%; 7:00 A.M. - 12%+. Oil was becoming more "gassy" during the test. Shut well in at 7:00 A.M. Pressure built up immediately to 375 lbs. Planning to continue test with smaller and variable choke.

1/8/69 (5:00 P.M. Report) On 1/7/69 placed well on 12/64" choke from 11:30 A.M. to 9:20 P.M. Produced total of 158 barrels of fluid. Flowing pressures averaged 315# during test. Fluid samples indicated oil increasing to high percentages during test which was later determined to be erroneous. The fluid flows through the system made up preparatory to squeeze cementing (including a number of Chiksan joints),which apparently results in oil building up in pockets or slugs,precluding accurate sampling.

Opened well on 12/64" choke at 12:00 noon and produced until 4:00 P.M. Produced 68 barrels of fluid, drained tank, measured 8 1/2 barrels or 12 1/2% oil.

Cumulative fluid produced in 17 1/2 hrs. of testing from 3:45 A.M., 1/7/69 to 4:00 P.M., 1/8/69, estimated at 300 barrels. Oil in tank estimated at 43 barrels or 14%. An indeterminate amount of oil was accidentally lost to pit.

1/9/69 (7:00 P.M. Report) Put well on 8/64" choke at 6:00 P.M., 1/8/69. Flowed into test tank to 6:00 A.M., 1/9/69. Produced 84 barrels of fluid with approximately 2% oil. Decided to kill well with heavy water, install conventional head, and resume testing on larger choke sizes. While waiting on heavy water, flowed into test tank 8:00 A.M. to 2:00 P.M. thru 17/64" choke. Produced 168 barrels total fluid, 9.34 barrels (5 1/2%) oil. Pumped 100 barrels of 9.6 #/gal. water into tubing (two stages) attempting to kill well. Well flowed back. Shut well in.

1/10/69 (7:00 P.M. Report) After setting over night well was sufficiently dead to remove the acidizing and cementing equipment and install valve on tubing. Unseated the packer and equalized pressure in tubing and annulus. Blizzard and sub-zero conditions are continuing.

DAILY DRILLING REPORT

1/11/69 7:00 P.M. Report. After shutting in for night, found tubing on vacuum and pressure on annulus due to unequal distribution of heavy water (injected 1/9/69). Could not flow pressure off of annulus. Attempted to run tubing plug to permit removal of blowout preventor. Tubing plug stuck in pup joint below valve. Could not be pulled with fishing tools. Opened bypass in tubing plug. Considerable pressure building up in tubing requiring the injection of additional heavy water to again attempt to kill well. Mixed 12 sacks of salt in 35 barrels of water to prepare a 9.6#/gal. fluid. Pumped in 20 barrels which slowed flow sufficiently to remove master valve and 2' pup joint. Reinstalled master valve quickly and shut off fluid. After redressing, plug still would not go through valve. Shut well in for night.

1/12/69 7:00 P.M. Report. Tubing plug was repaired in Williston over night. Tried to run plug but would not set because of insufficient pressure in tubing. Flowed well, attempted to establish sufficient tubing pressure to set plug. Reran plug and still would not set. After experimenting with various combinations of hard and soft rubber cups on the plug, it was successfully set. Lowered tubing to get to desired well head level. Reset packer at 7,111'. Removed blowout preventor, installed conventional well head equipment, and released rig. Hooked well back into 210 barrel test tanks. Shut in pressure on tubing 350#. Opened well into test tank at 4:30 P.M. From 4:30 to 6:30 P.M. flowed 69.42 barrels of fluid on 17/64: choke with 300# tubing pressure. Fluid sample at end of test indicated 7% oil. Changed choke from 17/64" to 12/64" (6:30 P.M. to 7:30 P.M.). Blizzard and sub-zero conditions are continuing.

DAILY DRILLING REPORT

Huber #5, SW NE Section 10, T28N, R51E, Roosevelt County, Montana

1/13/69 (7:00 P.M. Report) Flowed 186 barrels of fluid from 7:30 P.M., 1/12/69 to 5:30 A.M., 1/13/69 thru 12/64" choke. Fluid samples indicated 5-7% oil. Flowed 174 barrels of fluid on 12/64" choke from 5:30 A.M., 1/13/69 to 3:30 P.M., 1/13/69. Flowing pressure steady at 325#. Drained tank and measured 13 barrels of oil during this 10 hr. period. Oil appeared to be getting much gassier. Continuing test into alternate tank on 12/64" choke.

1/14/69 (7:00 P.M. Report) Flowed 151 barrels of fluid on 12/64" choke from 3:30 P.M., 1/13/69 to 12:30 A.M., 1/14/69. Drained tank and measured 9.34 barrels of oil during this 9 hr. period. Switched into alternate tank and flowed 146 barrels of fluid thru 12/64" choke from 12:30 A.M., 1/14/69 to 9:00 A.M., 1/14/69. Drained tank and measured 8.8 barrels of oil during this 8 1/2 hr. period. Switched tanks again and flowed 66.5 barrels of fluid thru 12/64" choke from 9:00 A.M. to 1:00 P.M. Drained tank and measured 3.5 barrels of oil during this 4 hr. period. Flowing pressure remaining steady at 325#. Shut well in. Pressure built immediately to 350#.

Changed to 14/64" choke at 1:00 P.M. Now testing on 14/64" choke. Blizzard and sub-zero conditions are continuing. Accumulated oil production in test tanks to 1:00 P.M. on 1/14/69 is 65 barrels.

DAILY DRILLING REPORT

Huber #5, SW NE Section 10, T28N, R51E, Roosevelt County, Montana

1/15/69 (7:00 P.M. Report) Flowed on 14/64" choke from 1:00 P.M. until 7:00 P.M., 1/14/69, at the rate of approximately 22 barrels of fluid per hour. Started draining tank and switched stream into alternate tank. While draining tank, Operator (in a state of over-exhaustion) fell asleep in car from 1:00 A.M. to 5:00 A.M. All fluid drained out of the one tank and the alternate tank filled up and overflowed the oil that had previously accumulated. Operator started the flow stream back into the empty tank at 5:00 A.M., 1/15/69, on 14/64" choke. Flowed 66 1/2 barrels fluid from 5:00 A.M. to 11:00 A.M., 1/15/69. During this flow interval, the choke plugged with fragments of packer rubber. Drained off water and measured 12 1/2 barrels of oil. After cleaning choke again, well flowed mostly water from 11:00 A.M. to 12:00 noon when choke plugged again. Removed choke and flowed well "hard" through full opening (approximately 3/4") for about 15 minutes trying to flow rubber fragments out of well. Put back on 14/64" choke and was plugged off again at 2:00 P.M. Drained tank and had additional 3 1/2 barrels of oil or total of 16 barrels of oil from 5:00 A.M. until 2:00 P.M., 1/15/69. Well continued to plug the 14/64" choke until the operation was shut in at 4:00 P.M. for the night. Flow lines and two 500 barrel tanks should be hooked up by Friday, 1/17/69, which will permit more flexibility in testing operations under the extreme winter weather conditions.

DAILY DRILLING REPORT

Huber #5, SW NE Section 10, T28N, R51E, Roosevelt County, Montana

1/16/69 (7:00 P.M. Report) Produced well through full choke opening (approx. 3/4") intermittently 15 min. on, 45 min. off from 8:00 A.M. to 2:00 P.M. Following are hourly rates of fluid and oil.

(1/16/69)	Bbls. Fluid	Bbls. Oil	Fl. Tubing Pressure
8:00- 8:15 A.M.	26.84	1.76	25 psi
9:00- 9:15	29.76	1.76	25
10:00-10:15	26.84	1.76	25
11:00-11:15	33.26	1.76	25
12:00-12:15 P.M.	35.00	1.17	25
1:00- 1:15	36.17	1.17	25

Placed well on 14/64" choke and flowed intermittently 20 min. on, 40 min. off with flow rates as follows:

(1/16/69)	Bbls. Fluid	Bbls. Oil	Fl. Tubing Pressure
3:15-3:35 P.M.	7.59	1.17	325 psi
4:15-4:35	7.59	1.17	300
5:15-5:35	7.59	1.17	300
6:25-6:45 P.M.	8.17	0	300

Preparing to place well on 8/64" choke to flow through night rather than shut well in.

1/17/69 (7:00 P.M. Report) Flowed 97 barrels of fluid with 5.7 barrels oil on 8/64" choke from 8:00 P.M. (1/16/69) to 9:00 A.M. (1/17/69). Fl. press. 325 psi. Flowed 129 barrels of fluid with 7 barrels oil from 10:00 A.M. (1/17/69) to 4:00 P.M. (1/17/69) through 14/64" choke. Placed on 10/64" choke at 4:00 P.M. for the night.

1/18/69 (7:00 P.M. Report) Flowed 155.17 barrels of fluid with 9.93 barrels of oil from 4:00 P.M. (1/17/69) to 6:00 A.M. (1/18/69). Still on 10/64" choke, flowed 141.17 barrels of fluid w/7.6 barrels of oil from 6:00 A.M. (1/18/69) to 6:00 P.M. (1/18/69) with 330 psi flowing pressure. Leaving well on 10/64" choke for the night.

DAILY DRILLING REPORT (Continued)

1/19/69 (7:00 P.M. Report) Flowed 138.26 barrels fluid with 6.43 barrels of oil through 10/64" choke from 6:00 P.M. (1/18/69) to 6:00 A.M. (1/19/69). Shut well in due to severe snowstorm and blizzard. Will try to get snow plowed out tomorrow so that crews can get in to finish hooking up flow line into 2-500 barrel lease tanks.

1/20/69 (7:00 P.M. Report) Well has been shut in since 6:00 A.M. (1/19/69). Plowed snow and got crews on location at about 11:00 A.M. Crews got one tank hooked-up, will probably finish hooking up other tank tomorrow. Will test well overnight into 500 barrel tank on 14/64" choke.

1/21/69 (7:00 P.M. Report) Flowed 334 barrels of fluid into lease tank #110 from 5:00 P.M., 1/20/69, to 9:00 A.M., 1/21/69. Oil content will be reported after water is drained from tank. Started flowing well intermittently (30 min. on, 30 min. off) on 14/64" choke into tank #109 at 9:00 A.M., 1/21/69. Will continue this test until 10:00 P.M.

1/22/69 (7:00 P.M. Report) Flowed 149 barrels of fluid intermittently through 14/64" choke (30 min. on, 30 min. off) from 9:00 A.M., 1/21/69, to 10:00 P.M., 1/21/69. Oil content will be reported after water is drained from tank. Switched well into tank #110 at 10:00 P.M., 1/21/69, producing continuously on 14/64" choke at rate of about 21 barrels of fluid per hour. Oil content will be reported after water is drained from tank.

1/23/69 (7:00 P.M. Report) Continued flowing into lease tank #110 on 14/64" choke until 6:00 P.M., 1/23/69. Water was being drained from tank during test. Finished draining water from 6:00 P.M. to 7:00 P.M., 1/23/69. Had 140 barrels of oil in tank which had accumulated during a 16 hour flow period, 5:00 P.M., 1/20/69 to 9:00 A.M., 1/21/69, and a 44 hour continuous flow period, 10:00 P.M., 1/21/69 to 6:00 P.M., 1/23/69, all on 14/64" choke. Switched into tank #109 while draining tank #110. Switched back into tank #110 at 7:00 P.M., 1/23/69. Continuing test on 14/64" choke.

DAILY DRILLING REPORT

Huber #5, SW NE Section 10, T28N, R51E, Roosevelt County, Montana

1/24/69 (7:00 P.M. Report) Continued flowing into tank #110 on 14/64" choke from 7:00 P.M., 1/23/69 to 11:00 A.M., 1/24/69, produced 345 barrels of fluid. Switched into tank #109 at 11:00 A.M., 1/24/69 and began draining water from tank #110. Flow continuing on 14/64" choke. Snow, wind and sub-zero temperatures hampering operations.

1/25/69 (7:00 P.M. Report) Flowed well into tank #109 from 11:00 A.M., 1/24/69 to 7:00 A.M., 1/25/69, produced 432 barrels of fluid. After draining tank #110 from 11:00 A.M., 1/24/69, had 165 barrels of oil accumulated in tank over total flowing time of 76 hours. Turned back into tank #110 at 7:00 A.M., 1/25/69, flowed to 6:00 P.M., 1/25/69, making 254 barrels of fluid in 11 hours. Temperature is -45°F, wind coming up - shut well in at 6:00 P.M. until weather abates.

1/26/69 Well shut in because of weather.

1/27/69 (7:00 P.M. Report) Placed well back on production into tank #109 at 2:00 P.M., 1/27/69, on 14/64" choke. Draining tank #110.

1/28/69 (7:00 P.M. Report) Flowed well from 2:00 P.M., 1/27/69, until 11:00 A.M., 1/28/69, into tank #109. Could not drain tanks fast enough to keep well on production, shut in at 11:00 A.M., 1/28/69.

1/29/69 Arranging for treating equipment to permit measurement of oil without necessity of draining tanks.

DAILY DRILLING REPORT

Huber #5, SW NE Section 10, T28N, R51E, Roosevelt County, Montana.

1/30/69 Waiting on treater to continue testing. Will treat oil in tanks with hot oil unit.

1/31/69 Treating water out of oil with hot oiler. Moving oil from 210 barrel test tanks at well to 500 barrel tanks for treating. Treater delivered.

2/ 1/69 Hooking up treater. After hot oiling recovered approximately 280 barrels of pipeline oil (42° API @ 60°F) which had been produced during testing from 5:00 A.M., 1/15/69, to date. All oil produced prior to 5:00 A.M., 1/15/69, was lost to pit and will be recovered at a later date.

2/ 2/69 Finished installing controls and lines on treater. Opened well on 14/64" choke at 11:00 A.M.

2/ 3/69 Treater working OK. Water dumping to salt water disposal system, oil still accumulating in treater.

2/ 4/69 Treater not dumping oil to tanks as yet. Flow line leaking. Found leak and shut well in at 7:00 P.M. to repair flow line.

2/ 5/69 Dug up line and repaired leak. Opened well on 14/64" choke at 5:00 P.M.

2/ 6/69 Well flowed 44.34 barrels oil to tank #109 during 16 hour period from 5:00 P.M. (2/5/69) to 9:00 A.M. (2/6/69). Water meter not yet installed on treater (presume total fluid flow is still 21-22 barrels per hour).

DAILY DRILLING REPORT

Huber #5, SW NE Section 10, T28N, R51E, Roosevelt County, Montana

2/ 7/69 Flowed 41.50 barrels oil from 9:00 A.M., 2/6/69 to 9:00 A.M., 2/7/69. (14/64" choke).

2/ 8/69 Flowed 45.67 barrels oil and 501 barrels water from 9:00 A.M., 2/7/69 to 9:00 A.M., 2/8/69.

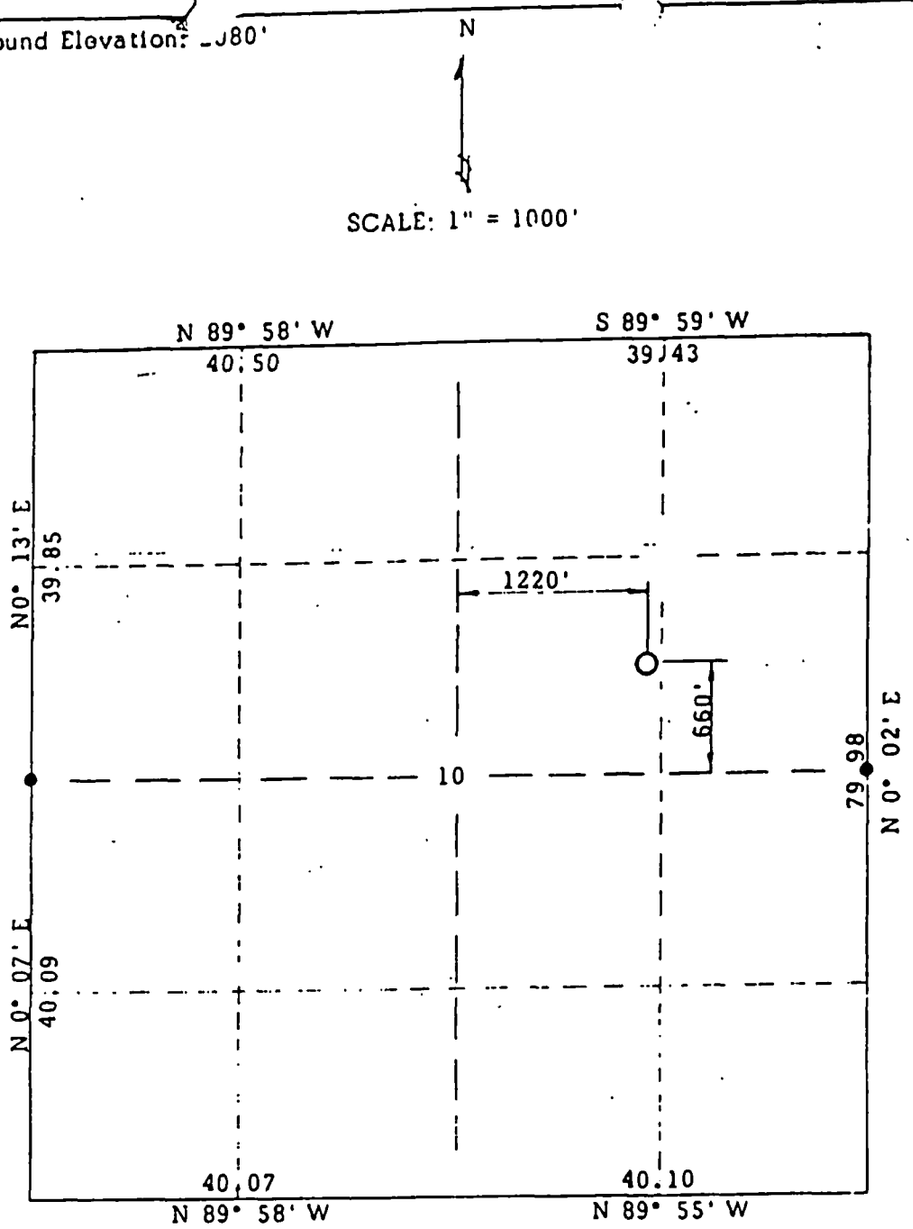
2/ 9/69 Flowed 48.32 barrels oil and 455 barrels water from 9:00 A.M., 2/8/69 to 9:00 A.M. 2/9/69. 14/64" choke, 360 psi flowing pressure.

2/10/69 Flowed 52.45 barrels oil and 481 barrels water from 9:00 A.M., 2/9/69 to 9:00 A.M., 2/10/69.

Well put on production status.

To drop from report.

Ungraded Ground Elevation: _080'



• Original Monument

LOCATION OF

HUBER #5

E. A. POLUMBUS, JR.

~~CENTER~~ OF SW¼ NE¼
SEC. 10 TWP. 28 N., R. 51 E.
OF THE PRINCIPAL MERIDIAN
ROOSEVELT COUNTY, MONTANA

Date: November 15, 1968

Webster, Foster & Weston
Consulting Engineers
Williston, North Dakota

MURPHY
EXPLORATION & PRODUCTION COMPANY

POST OFFICE BOX 547
POPLAR, MONTANA 59255

September 29, 1995

Huber 5 East Poplar Field

T.D. 7275' Packer set at 6135'

MIRU, P.O.H. with packer.

T.I.H. to 7264' (pick up 1130' tubing)

Pump 152 sacks of cement at 7264'
Lay down 2039' tubing
Pump 13 sacks cement at 5225'

Lay down 4150' tubing stand rest of pipe in derick.

Perforate 5½" casing at 1075'
Run Packer to 975' set Packer
Pump 30 sacks cement
Release Packer P.O.H. lay down packer
Run tubing to 56' pump 7 sacks cement
Lay down tubing
Cut off well head and pump 9 sacks down 1" pipe in 5½" annulus

SPUR

Mechanical Integrity Te
Casing or Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: Deb Madison Date 11/17/97 Time 10:41 (am)/pm
Test conducted by: Murphy Exploration
Others present: Ray Rule

Well: Huber No 5 SWDW	Well ID: MT 2779-04278
Field: East Poplar	Company: Murphy Exploration + Production
Well Location: SW, NE, S10, T28N, R57E	Address: Highway 2 East Poplar, MT 59255

300 BIG

Time	Test #1	Test #2	Test #3
0 min	600 psig	_____ psig	_____ psig
5	610		
10	620		
15	620		
20	635		
25	650		
30 min	650		
35			
40			
45			
50			
55			
60 min			
Tubing press	280 psig	_____ psig	_____ psig

Result (circle) Pass Fail Pass Fail Pass Fail

Signature of EPA Witness: [signature] 11/17/97

See back of page for any additional comments & compliance followup.

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Form Approved. OMB No. 2000-0042. Approval expires 9-30-86

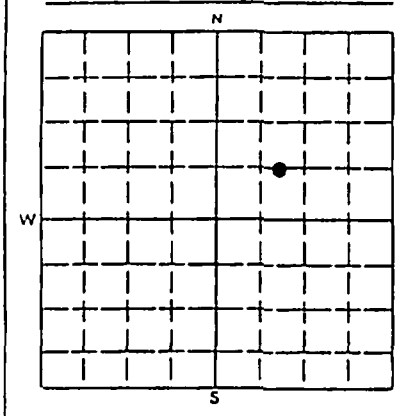
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR
Murphy Exploration & Prod. Co. P.O. Box 547 Poplar, MT 59255-0547	H & H Well Service P.O. Box 1244 Poplar, MT 59255-1244

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
XX ☒ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth After Rework	X ☐ Individual ☐ Area Number of Wells 1
Lease Name	Date Rework Commenced	Well Number
Huber	Date Rework Completed	5-D

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals
Test well for casing or tubing leak.		

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED
Raymond Reede District Manager	Raymond Reede	5-27-98

EPA Form 7520-12 (2-84)

Mechanical Integrity Test
Casing/Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: Deb Madison Date 6/2/98 Time 11:35 (am)/pm
Test conducted by: Murphy Exploration + Production
Others present: Kay Reed - Terry Ross

Well name Huber No.5 SWDW EPA Number MT2779-04278
Field name EPH Roosevelt County, MT
Location: SW NE ~~SE~~ qtr qtr; S10 Section; 28N Township; 51E Range
Owner/Operator Murphy Exploration + Production

Time	Test #1	Test #2	Test #3
0 min	650 psig	_____ psig	_____ psig
5	650		
10	650		
15	650		
20	650		
25	650		
30 min	650		
35			
40			
45			
50			
55			
60 min			
Csg press	_____ psig	_____ psig	_____ psig
Result (circle)	Pass Fail	Pass Fail	Pass Fail

Signature of Witness: Deb Madison

Returned - mailed copy to operator.

This is the front side of two sides

Form Approved. OMB No. 2000-0042. Approval expires 9-30-86

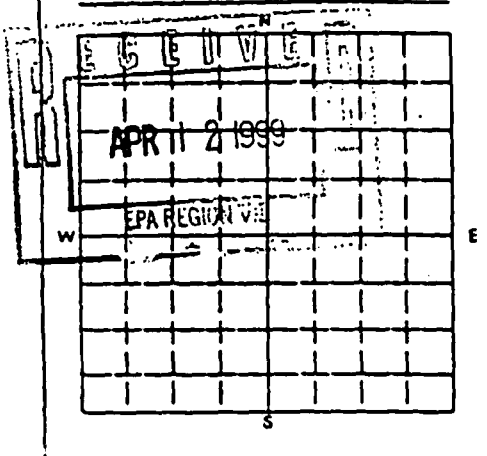
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

APR 12 1999

EPA WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR
Murphy Exploration & Prod. Co. P.O. Box 547 Poplar, MT 59255-0547	H & H Well Service P.O. Box 1244 Poplar, MT 59255-1244

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
XX Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth After Rework	XX Individual ☐ Area Number of Wells X
Lease Name: Huber	Date Rework Commenced	Well Number: 5-D
	Date Rework Completed	

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK (Indicate Additions and Changes Only)

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL
USE ADDITIONAL SHEETS IF NECESSARY

Packer Failed and Tubing Leak
Mechanical Integrity Test Attached

WIRE LINE LOGS, LIST EACH TYPE

Log Types	Logged Intervals

REVIEWED
BY:
DATE: 4/16/99

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)	SIGNATURE	DATE SIGNED
	Raymond Reed	4-7-99

EPA Form 7520-12 (2-84)

Mechanical Integrity Test
Casing or Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: _____ Date 4 / 7 / 99 Time 11:22 am/~~pm~~

Test conducted by: Ray Reede

Others present: Lloyd Ritland Dwayne Hagadone

Well: Huber No. 5-D Salt Water Dis.	Well ID: MT2779-04278
Field: East Poplar	Company: Murphy EXPRO P.O. Box 547
Well Location: SW SE Section ~~19~~ 10, T28N, R51E, Roosevelt County	Address: Poplar, MT 59255-0547

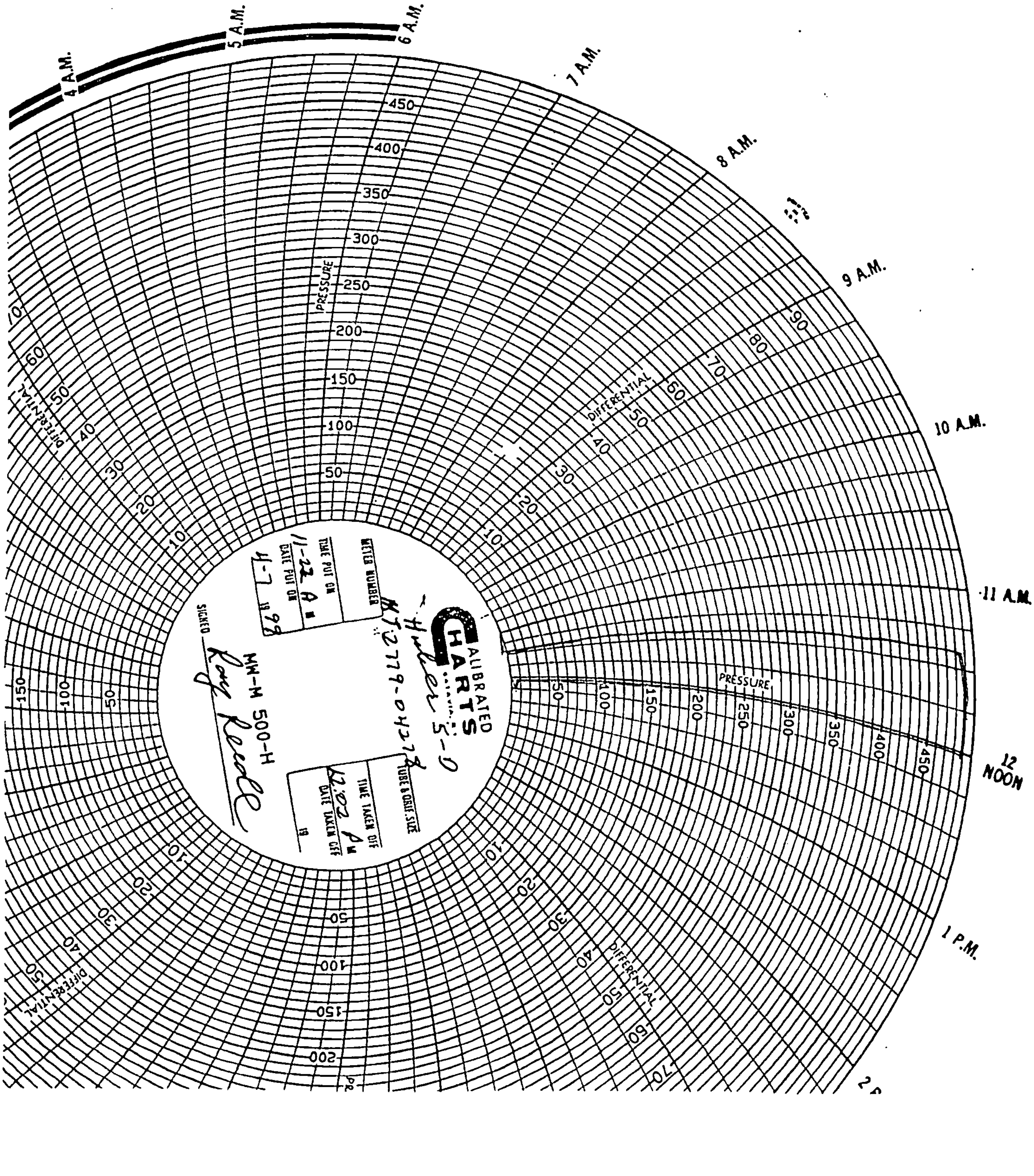
Time	Test #1	Test #2	Test #3
0 min	485 psig	_____ psig	_____ psig
5	488		
10	490		
15	490		
20	490		
25	490		
30 min	490		
35	490		
40			
45			
50			
55			
60 min			
Tubing press	0 psig	_____ psig	_____ psig
Result (circle)	Pass Fail	Pass Fail	Pass Fail

REVIEWED
BY: _____
DATE: 4/14/99

Signature of EPA Witness: _____

See back of page for any additional comments & compliance followup.

RECEIVED
APR 12 1999
EPA REGION VIII



4 A.M.
5 A.M.
6 A.M.
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
12 NOON
1 P.M.
PRESSURE
DIFFERENTIAL
CALIBRATED CHARTS
METER NUMBER
TIME PUT ON
DATE PUT ON
SIGNED
MW-M 500-H
TUBE & ORIF. SIZE
TIME TAKEN OFF
DATE TAKEN OFF

Mechanical Integrity Test
Casing or Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: _____ Date 4 / 20 / 99 Time 12:37 ~~am~~/pm

Test conducted by: Raymond Reede

Others present: Dwayne Hagadone Herbert Marottic

Well: Huber No. 5-D Salt Water Dis.	Well ID: MT2779-04278
Field: East Poplar	Company: Murphy EXPRO
Well Location: SW NE Section 19, T28N R51E, Roosevelt County	Address: P.O. Box 547 Poplar, MT 59255-0547

Time	Test #1	Test #2	Test #3
0 min	495 psig	_____ psig	_____ psig
5	490		
10	490		
15	490		
20	490		
25	490		
30 min	490		
35	492		
40	493		
45	494		
50			
55			
60 min			
Tubing press	_____ psig	_____ psig	_____ psig
Result (circle)	Pass Fail	Pass Fail	Pass Fail

Signature of EPA Witness: _____

See back of page for any additional comments & compliance followup.

7 A.M.
8 A
9 A.M.
10 A.M.
11 A.M.
12 NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
9 P.M.
10 P.M.
DIFFERENTIAL
PRESSURE
METER NUMBER
12137
TIME PUT ON
4-20-99
DATE PUT ON
TO
SIGNED
MW-M 500-H
CALIBRATED CHARTS
TUBE & ORIF. SIZE
TIME TAKEN OFF
1:28 P.M.
DATE TAKEN OFF
4-20 TO 99

CALIBRATED CHARTS
METER NUMBER
12137
TIME PUT ON
DATE PUT ON
4-20-99
ID
MW-M 500-H
SIGNED
TUBE & ORIF. SIZE
TIME TAKEN OFF
DATE TAKEN OFF
4-30 10 99
DIFFERENTIAL
PRESSURE
7 A.M.
8 A.M.
9 A.M.
10 A.M.
6 A.M.
5 A.M.
4 A.M.
3 A.M.
2 A.M.
1 A.M.
NIGHT
12
11 P.M.
10 P.M.
9 P.M.
8 P.M.
7 P.M.

Form ...oved. OMB No. 2000-0042. Approval expires 9-30-86

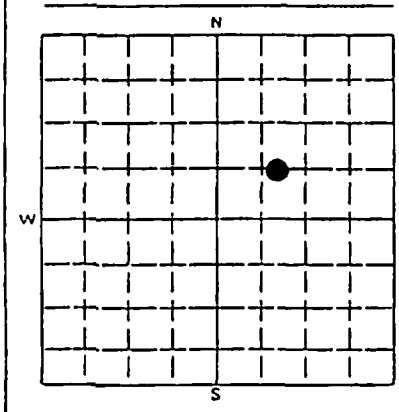
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR
Murphy Exploration & Prod. CO. P.O. Box 547 Poplar, Mt 59255-0547	H & H Well Service P.O. Box 1244 Poplar, MT. 59255-1244

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28B RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
☒ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth After Rework	☒ Individual ☐ Area Number of Wells 1
Lease Name Huber	Date Rework Commenced Date Rework Completed	Well Number 5-D

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE Log Types	 Logged Intervals
Tubing Leak Developed		
Mechanical Integrity Test Attached		

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED
Raymond Reede District Manager	Raymond Reede	April 20, 1999

...A Form 7520-12 (2-84)

Mechanical Integrity Test
Casing or Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: _____ Date 5 / 24 / 99 Time 5.07 ~~am~~/pm

Test conducted by: Raymond Reede

Others present: Dwayne Hagadone

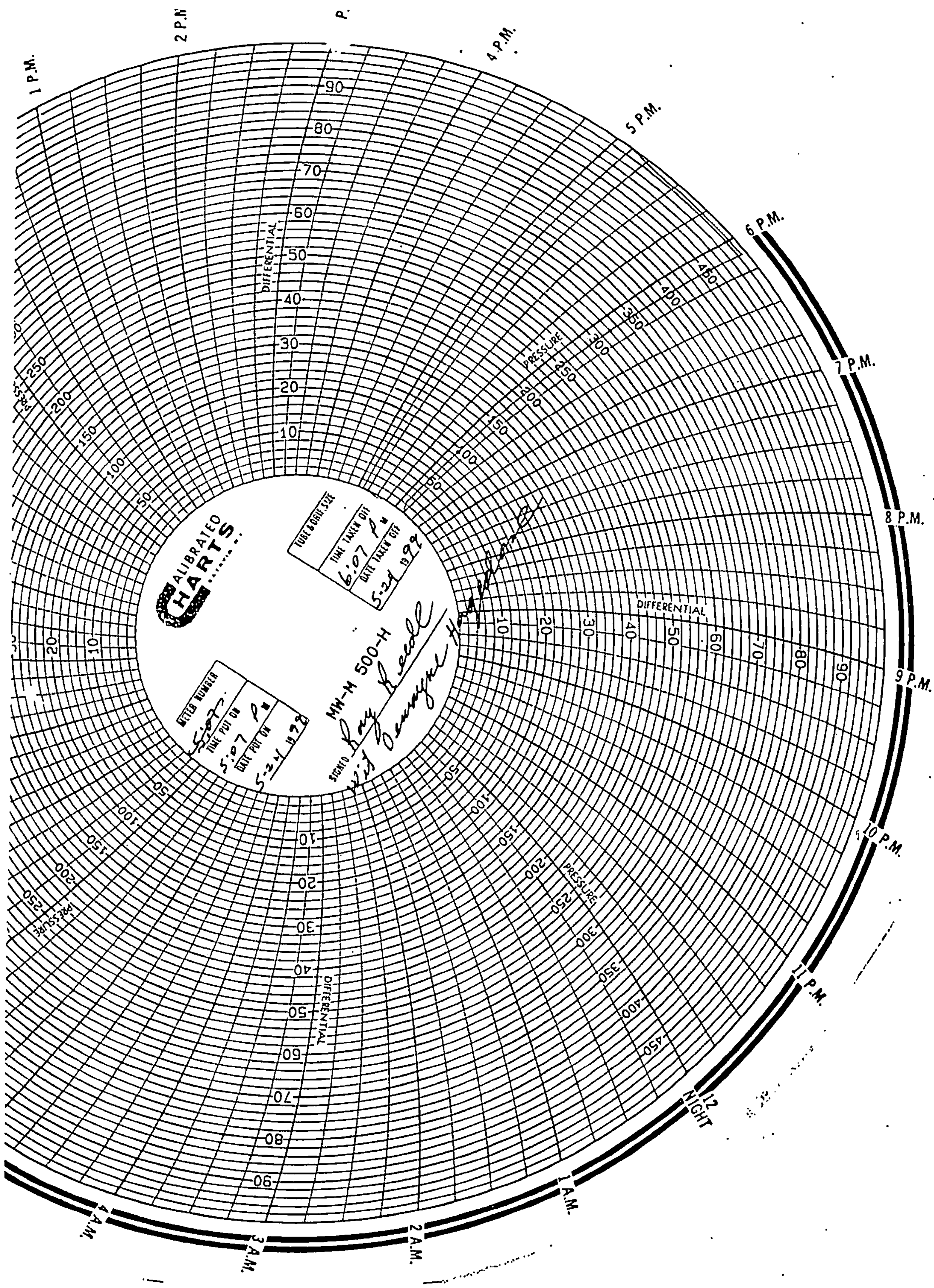
Well:	Huber No. 5-D Salt Water Dis.	Well ID:	MT2779-04278
Field:	East Poplar	Company:	Murphy EXPRO
Well Location:	SW NE Section 19, T29N, R51E, Roosevelt County.	Address:	P.O. Box 547 Poplar, MT 59255-0547

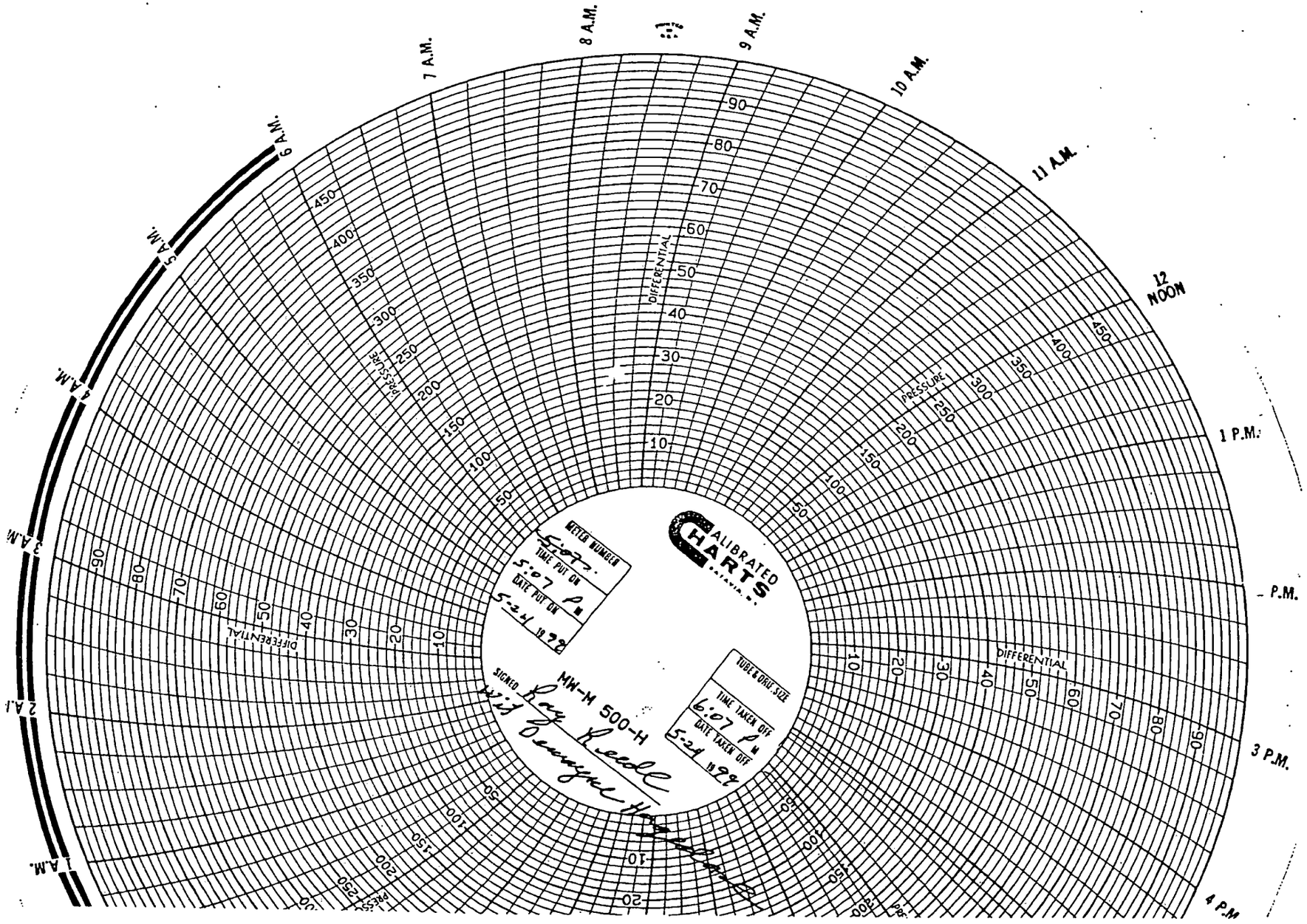
Time	Test #1	Test #2	Test #3
0 min	500 psig	_____ psig	_____ psig
5	495		
10	492		
15	492		
20	492		
25	492		
30 min	492		
35	492		
40	492		
45	492		
50	492		
55	492		
60 min	492		
Tubing press	_____ psig	_____ psig	_____ psig
Result (circle)	Pass Fail	Pass Fail	Pass Fail

Signature of EPA Witness: _____

See back of page for any additional comments & compliance followup.

Test Witnessed by Dwayne Hagadone with H & H Well Service


1 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
12 NIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
DIFFERENTIAL
PRESSURE
CALIBRATED CHARTS
MW-M 500-H
METER NUMBER
TIME PUT ON
DATE PUT ON
TUBE & ORIF. SIZE
TIME TAKEN OFF
DATE TAKEN OFF
SIGNED


6 A.M.
7 A.M.
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9 A.M.
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11 A.M.
12 NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
DIFFERENTIAL
PRESSURE
CALIBRATED CHARTS
METER NUMBER
TIME PUT ON
5:07 P.M.
DATE PUT ON
5-24 1928
TUBE & ORIF. SIZE
TIME TAKEN OFF
6:07 P.M.
DATE TAKEN OFF
5-24 1928
MW-M 500-H
SIGNED

Form approved. OMB No. 2000-0042. Approval expires 9-30-86

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

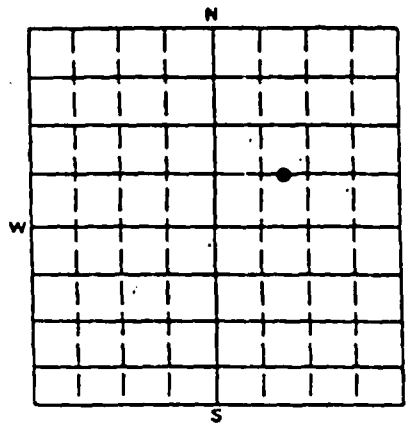
WELL REWORK RECORD

RECEIVED
MAY 28 1999
EPA REGION VIII

NAME AND ADDRESS OF PERMITTEE
Murphy Exploration & Prod. Co.
P.O. Box 547
Poplar, MT 59255-0547

NAME AND ADDRESS OF CONTRACTOR
H & H Well Service
P.O. Box 1244
Poplar, MT. 59255-1244

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
☒ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth After Rework	☒ Individual ☐ Area Number of Wells ____
Lease Name: Huber	Date Rework Commenced	Well Number: 5-D
	Date Rework Completed	

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL
USE ADDITIONAL SHEETS IF NECESSARY

Tubing Leak Developed - Hydrotest
Tubing - Mechanical Integrity Test
Attached. Cathodic Protection Installed

WIRE LINE LOGS, LIST EACH TYPE

Log Types	Logged Intervals

REVIEWED
BY:

CERTIFICATION

DATE: 6/10/99

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED
Raymond Reede District Manager	Raymond Reede	May 25, 1999

Form Approved. OMB No. 2000-0042. Approval expires 9-30-86

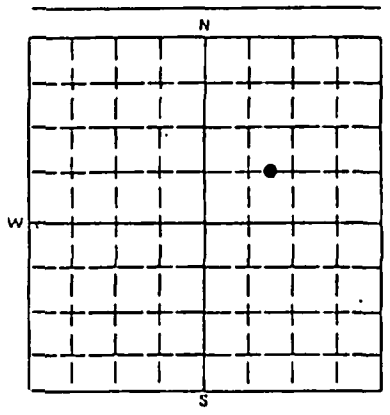
UNITED STATES ENVIRONMENTAL PROTECTION AGENC
WASHINGTON, DC 20460

EPA

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR
Murphy Exploration & Prod. CO. P.O. Box 547 Poplar, MT 59255-0547	H & H Well Sercice P.O. Box 1244 Poplar, MT 59255-1244

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT2779-04278

SURFACE LOCATION DESCRIPTION

NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
☒ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth After Rework	☒ Individual ☐ Area Number of Wells 1
Lease Name	Date Rework Commenced	Well Number
Huber	Date Rework Completed	5-D

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture
Size	Depth	Sacks	Type	From	To	Treatment Record

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture
Size	Depth	Sacks	Type	From	To	Treatment Record

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals
Packer Failed and Tubing Leak		
Mechanical Integrity Test Attached		

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED
Raymond Reede District Manager	Raymond Reede	June 3, 1998

EPA Form 7520-12 (2-84)

echanical Integrity Te
Casing or Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: Deb Madson Date 6/11/99 Time 9:13 (am) pm
Test conducted by: Murphy Oil USA
Others present: Dan Reede, Lisa Bowen

Well: Huber No 5 Well ID: MT 2779-04278
Field: EPA Company: Murphy Oil USA
Well Location: SW, NG S10 T28N R51 E Roosevelt Co, MT Address: P.O. Box 547 Poplar MT 59255

Time	Test #1	Test #2	Test #3
9:15 0 min	500/500 psig	_____ psig	_____ psig
9:20 5	500/500		
9:25 10	500/500		
9:30 15	500/500		
9:35 20	500/500		
9:40 25	500/500		
9:45 30 min	500/500		
35			
40			
45			
50			
55			
60 min			
Tubing press	-0- psig	_____ psig	_____ psig
Result (circle)	Pass Fail	Pass Fail	Pass Fail

Signature of EPA Witness: Deb Madson 6-11-99

See back of page for any additional comments & compliance followup.

This is the front side of two sides

Pictures - 2 mailed copy to operator.

6 A.M.
7 A.M.
8 A.M.
9 A.M.
5 A.M.
4 A.M.
3 A.M.
2 A.M.
1 A.M.
12 NIGHT
11 P.M.
10 P.M.
9 P.M.
8 P.M.
7 P.M.
DIFFERENTIAL
PRESSURE
METER NUMBER
TIME PUT ON
7:10 A.M.
DATE PUT ON
6-11 19 29
CALIBRATED CHARTS
SIGNED
MW-H 500-H
TUBE & ORIF. SIZE
TIME TAKEN OFF
9:47 A.M.
DATE TAKEN OFF
6-11 19 29

7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
12 NOON
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2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
9 P.M.
PRESSURE
DIFFERENTIAL
METER NUMBER
TIME PUT ON
7:10 A.M.
DATE PUT ON
6-11
TUBE & ORIF. SIZE
TIME TAKEN OFF
7:47 A.M.
DATE TAKEN OFF
6-11
CALIBRATED CHARTS
SIGNED
MW-M 500-H

Form Approved. OMB No. 2000-0042. Approval expires 9-30-86

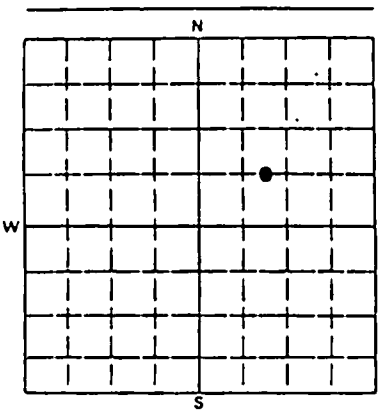
UNITED STATES ENVIRONMENTAL PROTECTION AGENC.
WASHINGTON, DC 20460

EPA

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR
Murphy Exploration & Prod. Co. P.O. Box 547 Poplar, MT 59255-0547	H & H Well Service P.O. Box 1244 Poplar, MT 59255-1244

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
☒ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth After Rework	☒ Individual ☐ Area Number of Wells ____
Lease Name Huber	Date Rework Commenced Date Rework Completed	Well Number 5-D

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals
Tubing Leak Developed -Hydrotest		
Tubing -Mechanical Integrity Test		
Attached.		

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED
Raymond Reede District Manager	Raymond Reede	June 14, 1999

EPA Form 7520-12 (2-84)

Mechanical Integrity Test
Casing/Annulus Pressure Te..

MT2779-04278

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW,
999 18th Street, Suite 500, Denver, CO 80202-2466

MT2779-0427

EPA Witness: TIM BAXTER
Test Conducted By: RAY REEDY
Others Present: DEB MADISON

Date 7/14/19 Time 1:22 am/pm

Well Name HUBER 5
Well Status for Test Shut-In Operating
Field Name POPLAR-EASY
Location NESWNE qtr qtr: 10 Section: 28 Township: 37E Range
Owner/Operator

TUBING PRESSURE			
Initial	0 psig	psig	psig
End of Test	psig	psig	psig

CASING/TUBING ANNULUS PRESSURE			
Time	Test #1	Test # 2	Test # 3
1:23 0 min	500 psig	psig	psig
5	500		
10	500		
15	489		
20 min	485		
25	482		
30	482		
35			
40			
45 min			
Result (circle)	Pass Fail	Pass Fail	Pass Fail

Volume of fluid added to annulus prior to test N/A
Volume of fluid bled back from annulus at end of test: 1 BBL
Workover since last pressure test? [ ] Yes [ ] No Operator Rep. does not know Date

Signature of Witness:

This is the first page of two pages.

Form. ...ved. OMB No. 2000-0042. Approval expires 9-30-86

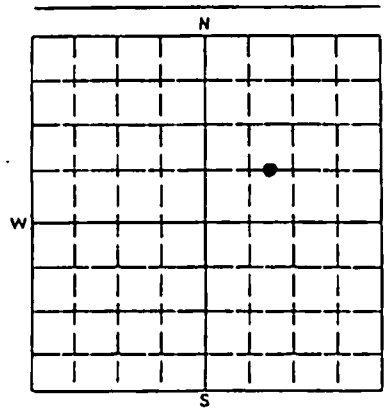
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

EPA

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR
Murphy Exploration & Prod. Co. P.O. Box 547 Poplar, Mt 59255-0547	H & H Well Service P.O. Box 1244 Poplar, MT 59255-1244

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
☒ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth After Rework	☒ Individual ☐ Area Number of Wells ____
Lease Name: Huber	Date Rework Commenced	Well Number: 5-D
	Date Rework Completed	

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals
Tubing Leak Developed - Changed Tubing String - Mechanical Integrity Test Attached.		

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED
Raymond Reede District Manager	Raymond Reede	July 22, 1999

EPA Form 7520-12 (2-84)

WORKOVER REPORT

HUBER NO. 5

10-28-71 Rig up - Hookup pump truck (froze up). Start heavy water down tubing, 60 bbl in tubing on vacuum (45 bbl 125# psi) B.O.P. installed - rig to circulate, start circulating heavy salt water down tubing up casing. Pumped 20 bbl down tubing - well will not circulate, packer elements holding, by-pass not open. Pulled one joint - rig to pump down casing. Start pumping down casing, B.O.P. won't hold - rams no good. Take off B.O.P. & install stripping head. Pull 1 joint. Start water down casing casing pressured to 1000#. Jar tubing - by-pass finally opened. Start down tubing with water. Casing started flowing. Hose blew up valve shut. Start down tubing with water - well circulating. SI on vacuum after 240 bbls.

10-29-71 Well running over start out with tubing. Well flowing 112 stands out. S.D. & put on stripper head - ordered heavy water. Pumping cold water down tubing @ 500 psi. Emptying pit. Heavy water on location. Killed well Rig up lubricator. Perforated and ran Model D - set @ 9:30 P.M. Locked up.

10-30-71 Going in hole with tubing. Stinger in Model D circulating down tubing. Spotted acid - opened lower zone to tubing. Acid in. Pumped 500 gallons 15X 15% down annulus

ISIP - 600
6 min - 300

Max psi - 2500	Max rate - 1 BPM
Mim psi - 1100	Mim rate 1/4 BPM
Avg psi - 1400	Avg rate 3/4 BPM

WORKOVER HISTORY

HUBER NO. 5

9-11-73 Rig down well head, wait on water truck. Start mixing weight material in water. Local pump truck could not mix gel in water, called Halliburton for pump truck. Could not get truck to bring heavy water from Reserve so had to mix 8.7# lease water which will be quite expensive. By leaving weighted water on back side we will not have to repeat this procedure when we next work on well, all we have to do is release the packer and the well will kill. On previous job, 9.6# water with salt added would not hold well. Baroid representative said that salt would also settle out on us and might stick our packer. Decided to use gel and Baroid. Had 240 sx of Bariod and 120 sx Gel brought to location, however, only used 128 Baroid and 64 gel. Halliburton on location, start mixing mud. Tubing took fluid at 2 BPM, 800 psi initially. Having trouble mixing gel, keep plugging up. 40 bbl slurry in tubing, tubing on vacuum, start pumping slurry down casing. (Mix 20 bbl, then pump it). Casing took fluid at 1-3/4 bbl, 800 psi. 80 bbl in casing, casing on vacuum (70 bbl would not hold it). Clean up and rig down Halliburton. Come out of Model D packer, no trouble. Start out of hole with tubing. Out with 5200' of tubing, shut down for darkness.

9-12-73 Resume pulling tubing. Out with tubing and stinger. Crimped 6 joints. Start in with tubing and Baker Model R single grip packer. Packer set with 30,000 #'s set down at 7215', rig to swab well in. Pulled 5 loads from 1500', (hole full) well came in. Let well flow to pit to clean up slurry. Rig up well head. Put well on 12/64 choke, flow pressure 300 psi. Move rig off location.

Tubing record: 227 joints 2-7/8" eue 8rd tubing
1 Baker Model R Single Grip Packer @ 7215'

WORKOVER HISTORY

HUBER NO. 5

Lease and Well Number: Huber No. 5

Field: East Poplar County: Roosevelt State: Montana

Well Location: SW¼ NE¼ Section 10, T28N, R51E

Date of Last Workover: September 12, 1973

Date Completed: January 8, 1969 TD: 7307'

Latest Test: 30 BO and 1659 BW on 1/2" choke. FTP 150

Producing Zone: Nisku section of Devonion.

JUSTIFICATION OF WORKOVER:
Casing grew out of hole, releasing 5½ slips and packing. Surface head corroded to the point it could not be shut off. 5½" slips and packing leaking. In event of tubing leak, well would be out of control. 5½" casing also developed hole below slips.

SUMMARY OF WORKOVER:

1-29-76 Killed well with 140 bbl War Club lease water and 50 bbl 10.2# Reserve Water. Installed BOP.

1-30-76 Came out of hole with Model R single grip packer and tubing. Went in hole with RBP and Baker Moder E Packer. Set RBP and tested to 1000#. Set RBP at 5500'.

1-31-76 Pulled 40 stands and set packer at 3000', tested casing, casing held. Pulled 20 stands and set packer at 1750', tested casing, casing held. Pulled 11 stands and set packer at 1033', tested casing, casing held. Pulled 4 stands and set packer at 785', tested casing, received returns out of 5½" and surface pipe both. Packer not holding. Pulled 1 stand and re-set packer, packer would not hold, to shallow of depth for this packer to operate properly. (Set down packer) Pumped down 5½" to assist packer to pack off. No results. Pulled Model E Packer and installed Model C-1 tension packer. Ran 1 stand, set packer, circulated down 5½, received returns out surface. Pressured tubing to 600 psi, tubing held, hole is above packer. Pulled 1 joint, set packer, pressured tubing to 600 psi, tubing held. Hole in casing is in top 30' of 5½". Shut down for night.

2-01-76 No work Sunday.

2-02-76 Stripped off BOP and 5½" larkin casing head. Dug out cellar, had to get crew with jack hammer to dig out conductor pipe and cut it off. Cut off Braden head 2' and removed. Discovered hole in 3' casing stub below slips. Pulled on casing to take a look at the hole. Pipe looked to bad to pull on to reland casing below hole or try for Back-off. Re-dug cellar out, had to get

crew and jack hammer again to cut off 2' additional surface pipe. Shut down for night.

2-03-76 Recut surface pipe to expose 5½" collar below casing stub. Stacked casing out and backed out 3' casing stub with pipe wrenches. Casing stub had 3" half-moon split which had flared out ½". Welded reconditioned cameron braden head on 8-5/8" surface pipe, screwed pickup sub into 5½" collar and pulled 100,000 tension on casing and landed in slips. Installed packing and tubing hanger daper spool with master valve. Picked up and ran RBP retrieving tool.

2-04-76 Released RBP and came out of hole. Went back in with Baker Model R single grip packer. Set packer at 7227'. Flanged up well head. Put 20,000# set down on packer. Pulled 4 swab pulls, well did not come in. Shut down for night.

2-05-76 Swabbed well in with 4 swab runs. Let well clean up to pit. Shut well in. Had to get crew to make new tie in to flow line. Got well tied in late in afternoon. Left well down overnight.

2-06-76 Started well flowing to treater at 8:00 am. SITP 280 IFP 80

Down Hole Equipment:
Baker Model R single grip packer, set at 7227'.
228 jts 2-7/8" EUE, ird tubing to surface.

Replaced complete head from surface pipe including Braden head, slips, pakcing, tubing hanger assembly and flow control head. Installed new 1/2" ceramic choke.

NOTE: Casing stretch chart indicated free pipe to cement top.

WORKOVER HISTORY

HUBER NO. 5

Lease and Well Number: Huber No. 5

Field: East Poplar County: Roosevelt State: Montana

Well Location: SW¼ NE¼ Section 10, T28N, R51E

Date of Last Workover: January 1976

Date Completed: January 8, 1969 TD: 7307'

Latest Test: 30 BO and 1659 BW on 1/2" choke. FTP 150

Poducing Zone: Nisku

JUSTIFICATION OF WORKOVER:

The Huber No. 5 well is currently temporarily abandoned with Nisku perforations open 7262'-64' and 7242'-48' with a Model D production PKR set between them. It is proposed to drill out the Model D production packer at 7252' and run a HLC Thermal Multigate Decay Log from 7300' up to 4800' and evaluate. After evaluation of the logs perforate the best zone and test.

SUMMARY OF WORKOVER:

5-13-90 MIRUPU

5-14-90 Hook up water truck, kill well and release PKR. P.O.H. with tubing, rig broke down 7 hours finish P.O.H. didn't have PKR.

5-15-90 Rig up HOWCO wire line to run log. Logging tools wouldn't work - hole to hot for tools. Shut down waiting on new tools.

5-18-90 Rig up HOWCO to run log. Finished logging. Start in hole hit something hard @ 665' must be PKR. Layed down tubing cap well off.

5-19-90 RDMOPU Tuboscope tbg and recut threads and new collars. Wait on evaluation of logs.

11-16-90 MIRUPU pick fishing tool for 2-7/8" tbg collar. Tool wouldn't go through well head. Took off well head csg swedged in on top. Cut off csg put well head back on. T.I.H. with fishing tool couldn't catch fish, wash pipe not long enough. P.O.H. run fishing tool with 2-7/8" grapple couldn't get over fish. P.O.H. SDFD

11-17-90 Pick up 1 jt. 4½" wash pipe and over shot for 2-7/8" tbg collar. T.I.H. couldn't get over fish. P.O.H. pick up 2½" tbg spear. T.I.H. tag fish @ 665'. Tool kept going deeper. Pick up to 665' tool hung up indicating csg parted. P.O.H. pick up 5½" csg spear. Took off well head. Ran spear in casing. Pulled 10,000# slips came loose. Csg free shut down waiting on casing tongs and slips.

11-18-90 Rig up casing crew P.O.H. with csg. Pin broke off 20th jt. of csg. 5½" collar looking up with dutchman in it. Put well head and BOP back on. SD wait on orders.

11-19-90 Sunday no work

11-20-90 Take off well head pick up fishing tool with 6" grapple. T.I.H. with 5½" csg had trouble getting over fish, got fish pulled 50,000#. Slack off to 10,000#. Rig up Dia-Log back off casing @ 721'. P.O. H. took off overshot found piece of csg slip laying in 5½" csg collar. Trip in hole with csg screw in and tourque up csg. Had trouble setting slips pack head off, cut csg off and put well head back on. SDFD

11-21-90 Pick up 4-3/4" bit and scraper. Run 89 joints 2-7/8" tbg in hole. Rig down to service unit wells.

11-29-90 Move in and rig up. Run rest of tubing to 7170' 226 jts tubing total. Tag bottom and pull tubing stand back. SHFD

11-30-90 Start rig and rig up Halliburton. Run plug and set at 6520'. Ran casing gun to 6421'-23' and perforated. Rig down Halliburton, run tubing and PKR 6500'. Pump salt water down casing to clean mud out of hole. Pump 115 bbls lay down 2 jts set PKR at 6370'. Two joints tail pipe total 6432.23'. Start swabbing. Swab down to S.N. SDFD

12-01-90 Tubing standing full. Swabbed down to Seat Nipple. Swabbing 9 bbls per hour 100% water chlorides 40,000. Swab 3 hours fill tubing release PKR. P.O.H. rig up Halliburton set CIBP @ 6400'. Pick up 4" casing gun and perforated 5185'-87'. Note well perforated 1000' to high should have been 6185'-87'.

12-02-90 Start rig, run 2 joints and PKR and rest of tubing to 5186.29' set PKR. Start swabbing. Swabbed down wait 1 hour and make one more run. 200' of fill up. 100% water. Shut down.

12-03-90 No work. No psi on tubing no fluid.

12-04-90 Start rig start swabbing 1800' fill up 1% oil. Swabbed down to bottom wait ½ hour 150' to 200' fill up. Fill hole run tubing to 5887'. Over all swabbed down to 4000'. Wait on Halliburton. Rig up Halliburton perforate at 6185'-87' 9 hole. Rig down Halliburton start swabbing. Swabbed down to bottom wait 1 hour 100' fill up 100% water. Shut down.

12-05-90 Start rig and start swabbing fluid level at seat nipple. Fill tubing and run to 6202.70' end of tail pipe. PKR at 6140.70'. Wait on acid. Rig up acid truck and spot acid. Set PKR. Pump 250 gallons 15% HCL acid. Max psi 1440, 5 min 690, 10 min 420 and 15 min 370, average psi 1260. Total pumped 36 bbls. Rig down Dowell. Start swabbing. Swabbed down to 4000', 250' to 500' of fill up each run. Broke sand line, fill tubing and start pulling tubing. SDFD

12-06-90 T.I.H. with tubing. Start swabbing swab 4½ hours 20 bbls per hour 100% water no gas. P.O.H. with tubing retrieve swab tools. Start back in hole with tubing. SDFD.

12-07-90 Start rig and run PKR and tubing to 6206.70'. Rig down and move off location.

HUBER NO. 5-D

SUMMARY OF COMPLETION AS DISPOSAL WELL

9-12-97 Move in rig and drilling equipment. Had trouble getting bolts out of wellhead. Pull out of hole with tubing.

9-13-97 Pick up packer and RTBP. Test 195 joints tubing, 2-7/8", to 7,000#. Blew up 6 joints. Set bridge plug at 5394'. Set packer at 5333'. Pressure RBP to 975#, held OK. Move packer to 5141', pressure casing to 975#, in 30 minutes pressure bled to 940#. Casing seems to be OK. Pump into perforations 5185-5187', pressure to 1040#, bled to 650# in 5 mins.. Shut down for day.

9-14-97 Put on BOP, set packer at 5141', spot 500 gallons 15% hydrochloric acid. Started taking acid at 3100#, 1/4 BPM. Pump acid 6/10 BPM 3235#, pressure broke back, pump 2.4 BPM at 1870#, over displace 10 barrels. ISIP 1351# 5 Min. SI 1141# 10 MIn. SI 1068# and 15 Min. SI 999#. Swab tubing dry No fluid entry. Mix and spot sand on top of bridge plug, shut down waiting on cement.

9-16-97 Shut down waiting on cement.

9-17-97 Pull 3 stands tubing, set packer, get injection rate, 1/2 BPM at 1400#. Pump 10 barrels fresh water, mix 50 sacks Class G cement with 35% Silica Flour and retarder. Pump 10 barrels fresh water behind, set packer, slow rate to 1/4 BPM at 1450#. With 5 barrels cement in pressure climbed to 4000#. Release packer, reverse out, set packer, pressure tubing to 2500#, bled off 150# in 7 mins., pressure tubing to 2500#, bled off 50# in 9 mins., release packer, pull 10 stands tubing set packer, pressure to 1000#, cement held. Left pressure on tubing, rig down HOWCO.

9-19-97 Pressure squeeze to 1000#, held for 30 mins.. Pull out of hole with bit and scraper. Pick up BP retrieving tool, trip in hole. Tag plug, circulate sand off plug, release bridge plug. Pull out of hole laying down bridge plug. Pick up 4-3/4" bit and scraper. Run pipe out of derrick. Shut down due to high wind.

9-20-97	Hook up vac truck. Clean drilling tank and empty pit. Fill test tank with 200 barrels heavy salt water, roll the hole with 90 barrels heavy water. Pick up 12 joints new pipe, tag top plug and start to drill. Top plug loose, pick up 4 more joints, push 1st plug down to 2nd plug. Drill until second plug is free, run 1 more joint, pull out of hole. Start back in with shoe, run pipe in the derrick. Shut down for day
9-23-97	Finish picking up tubing off ground. Tag fish at 7193'. Mill 1 hour, quit making hole and started torquing up. pick up on tubing, pulled 40,000# over weight on pipe, pulled loose, casing went on a vacuum. Pull out of hole, had bottom of bridge plug in wash pipe. Pick up overshot for 2-7/8" tubing collar. Trip in hole, catch fish, couldn't pull packer loose. Brakes on rig hot, couldn't jar on tubing. shut down to let brakes cool.
9-24-97	Jar on packer, packer came loose. Pull out of hole, pick up coated packer. Trip in hole, circulate packer fluid down casing. Take off BOP. Set packer, flange up wellhead. Pressure test casing, casing wouldn't test. Let well set overnight, will test in morning.
9-25-97	Pressure test casing to 1000#, bled off 10# in 30 mins, release pressure, rig down.
9-27-97	Hook up rig pump, get injection rate, 1.1 BPM at 1000#, Nisku formation seems to be plugged.
10-21-97	Rig up Wedge Dialog to run tracer survey, Pump truck broke down halfway thru job. Shut down waiting on pump truck.
10-22-97	Finish running tracer survey.
11-5-97	Move In Rig Up Pulling Unit. Release packer, pull out of hole, lay down packer, pick up 4-5/8" bit. Trip in hole to 7200'. Acts like a soft bottom.
11-6-97	Rig up drilling equipment. Drilling 7-1/2 hours. Pipe started dragging. Pull out of hole, lost 1 cone off bit. Bit wore in the middle, suggests we were drilling on a piece of pipe.

11-7-97	Pick up 43' of 4-1/2" wash pipe and shoe. Trip in hole. Start drilling, pipe torqued up at first. Drilled 1", dropped thru, felt like we were pushing something. Drilled to 7280', quit making hole. Started torquing pipe. Casing pressured up like Model R pumped up inside wash pipe. Trip out of hole. Pick up Model R Coated packer, trip in hole to 6923'. SDFN
11-8-97	Rig up Penkota wire line, perforate 7240-7250', 7260-7268', and 7272-7276'. Set packer at 7211'. Nisku flowing 147 BWPD up tubing, Mission Canyon flowing 139 BWPD up casing. Hook up rig pump, get injection rate of 7/10 BPM at 900# into Nisku Formation. Shut down waiting on acid.
11-11-97	Lay down 39 joints of tubing, pump 100 barrels packer fluid down casing, set packer at 6139.63'. Wait on acid.
11-12-97	Rig up HOWCO, start pumping acid, pump 500 gallons of 15% Hydrochloric acid 3.9 BPM at 2052#, start dropping balls, 112 barrels, pumped 6 BPM at 2400#., pump 145 barrels at 7.5 BPM at 2685#, over flush 2 barrels. ISIP 157#, 3 mins on vacuum. Put on well head flange Pressure casing to 675#, held. Pump 95 barrels 9.4# water down tubing, 4 BPM at 610#. Stop pumping well on vacuum. Rig down rig. Used the following material for acid job. 5,000 gallons 15% Hydrochloric Acid, 75 gallons HAI-85M, 50 lbs. Ferchek A and 50 gallons Sperse-All M.
11-17-97	Mechanical Integrity Test run 11-17-97. Passed
1-8-98	Attempt to start injecting into well. Couldn't pump into well, pump pressure up to 1100#. Flowed well back at 1.5 barrels per minute. Flowed 140 barrels, tried pumping, still couldn't pump into well.
1-9-98	Flowed back 310 barrels, flowing at the rate of 2.6 barrels per minute. Tried to pump, it would pressure up to 1100#. Closed tubing valve, hooked hose to test tank, tried pumping into test tank, pumped at 50# pressure.

1-22-98 Acidized with 40 gallons 28% HCL aicd. Put acid in flow-line and displaced it with disposal pump. Let acid set for one hour and started disposal pump.

Pressure before acid job - 890#
Pressure after acid job - 750#

HUBER 5-D

4-6-99	Pull tubing, hydrotest tubing into hole. Changed 2 joints tubing. Ran Arrow Set packer, set with 9,000# strain.
4-7-99	Rig up pressure truck, pressure check to 500 psi. Held pressure. Hook up to start disposing of water
4-13-99	Release packer, pull and tally tubing out of hole. Run tubing and packer into hole. Set packer.
4-19-99	Pull tubing, found 2 joints with holes. Fish standing valve. Run tubing and packer back into the hole. Set packer. Try to fill backside. Release packer and pull tubing and packer.
4-20-99	Hydrotest tubing, changed 3 joints. Holes at 2976', 3100', and 3720'. Change packer, run Arrow Set (9,000# set down). Pressure up on tubing, held pressure OK. Hook up to start disposing of water.

DOWELL — DOWELL DIVISION OF THE DOW CHEMICAL COMPANY — **CUSTOMER**

SERVICE AND INVOICE NUMBER [illegible]

TERMS: NET 30. ADD LEGAL INTEREST THEREAFTER.

Please indicate on all remittances and send to: 1579 EAST 21 STREET TULSA, OKLAHOMA 74114

SERVICE ORDER RECEIPT AND INVOICE

DATE	CUSTOMER ORDER NO.	SHIPPED VIA	SERVICE FROM DOWELL STATION	OUTPOST
1-6-69		Dowell Trk	Williston	Tioga

WELL NAME AND NUMBER: Huber #5

LOCATION AND POOL: Sec T R Poplar

COUNTY, CITY (IF WITHIN CITY LIMITS) & STATE: Roosevelt, Montana

TYPE OF SERVICE: [illegible]

CUSTOMER'S NAME: [illegible]

ADDRESS: [illegible]

CITY, STATE AND ZIP CODE: Denver, Colorado ZIP CODE

SERVICE INSTRUCTIONS: [illegible]

ITEM NO.	QUANTITY	UNIT	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT PRICE	AMOUNT
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	75.00
[illegible]	1	[illegible]	[illegible]		200.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	135.00
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	1	[illegible]	7.50	7.50
[illegible]	100	[illegible]	[illegible]	1.26	126.00
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	136.56
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15.63
[illegible]	75	lbs	D-13 Retarder	.27	20.25
					917.74
			SUB TOTAL		
			Gallons License Fee		
			Gallons License Fee		
	%		Tax on $		
	%		Tax on $		
				TOTAL	$

FRACTURING LICENSE FEE STATEMENT: Must be signed ONLY if the fracturing license fee does not apply because the fracturing fluid used in this treatment was either:

1 - Unthickened water or acid.

2 - Crude oil produced from the same formation in the same field as the well being treated.

EXEMPT-GAL.

CUSTOMER BY ______ AUTHORIZED AGENT

SERVICE ORDER

IMPORTANT: SEE OTHER SIDE FOR TERMS & CONDITIONS

I have read, understood and agreed to the terms and conditions printed on the reverse side hereof and represent that I have full authority to accept same and sign this order.

CUSTOMER BY [signature] AUTHORIZED AGENT

[redacted]

DOWELL ENGINEER: [signature] PAYROLL INITIALS: R.L.S.

RECEIPT: The undersigned hereby certifies that the materials and equipment listed above were received and the services were performed in a workmanlike manner.

CUSTOMER BY [signature] AUTHORIZED AGENT

Form 50-M Printed in U.S.A.

STIMULATION TREATMENT REPORT

DWL-494-J PRINTED IN U.S.A.

DOWELL DIVISION OF THE DOW CHEMICAL COMPANY

DATE 10-30-71 ~~15-2-7078~~

WELL NAME AND NUMBER: Huber #5	LOCATION: SEC 10-28N-51E	CUSTOMER REPRESENTATIVE: MR NEES	TREATMENT NUMBER: 15-2-7078
POOL: E. P. U.	FORMATION: Nisku	JOB DONE DOWN: TUBING A ☐ CASING B ☐ ANNULUS C ☒	ALLOWABLE PRESSURE: TBG: CSG:
COUNTY: Roosevelt	STATE: Montana	TYPE OF WELL: OIL A ☒ GAS B ☐ WATER C ☐ INJ. D ☐	
TYPE OF SERVICE: Acid		AGE OF WELL: NEW WELL A ☐ REWORK B ☒	TOTAL DEPTH: CIRC. BHT:
CUST. NAME: Columbus Corporation		CASING SIZE: 5 1/2 CASING DEPTH:	TUBING SIZE: 2 7/8 TUBING DEPTH:
ADDRESS: 1000 Capital Life Bldg.		LINER SIZE: LINER DEPTH:	PACKER TYPE: Baker "D" PACKER DEPTH: 7255
CITY STATE & ZIP CODE: Denver, Colorado 80202		OPEN HOLE: CSG.OR ANRL.VOL.:	TBG VOLUME: STATIC BHT:

REMARKS: Acidize perfs-7242-48 500 gal- 15%

PERFORATED INTERVALS

DEPTH	NO. OF HOLES	DEPTH	NO. OF HOLES	DEPTH	NO. OF HOLES
7242-48					

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: 0930

TIME	INJECTION RATE	INJECTION BBLS IN	PRESSURE CSG.	PRESSURE TBG.	SERVICE LOG
					Safety meeting Hookup-
1209	3		0	800	Start Formation Water via Tubing To displace S/W.
1236	3	65	0	800	Stop pump wait on water-
1303	1 1/2			600	Start Acid
1310	1 1/2	12	0	600	Acid in Tubing Start Water-
1330		55	100	300	Acid in Annulus-
1332					Pressure casing-
1344		4	2500	600	Acid on perfs- wait on water-
1404	1	1		600	Start Pump @ 1 BPM-
1413	1	13	1100	600	Acid displaced-
					ISIP- 600
					6 min - 300
					Max psi - 2500 Max Rate - 1 BPM
					Min psi - 1100 Min Rate - 1/4 BPM
					Avg psi - 1400 Avg Rate - 3/4 BPM-
					Total Load- 150 BBL

TIME LEFT LOCATION: 1500	AVG. LIQUID INJ. RATE: 3/4 BPM-	ADJ. INJ. RATE (SOLIDS INCL.)	TOTAL FLUID PUMPED: OIL	WATER
MAX. PRESSURE: 2500	AVG. PRESSURE: 1400	FINAL PUMP IN PRESSURE: 1100	SHUT IN PRESSURE: IMMEDIATE 600	15 MINUTES 300
DOWELL LOCATION: Glendive	DOWELL ENGINEER: DC Lee			

PROPS AND LIQUIDS INJECTED

TYPE	SIZE OR PURPOSE	AMOUNT
15%	15%	500 gal

CALL BACK: DATE | CUSTOMER REP. CONTACTED | CUSTOMER CONSIDERED SERVICE: ☐ SATISFACTORY ☐ UNSATISFACTORY ☐ UNKNOWN

PROD. BEFORE TREATMENT: ☐ TEST ☐ ALLOWABLE

PROD. AFTER TREATMENT: DAYS ☐ TEST ☐ ALLOWABLE

WATER ANALYSIS REPORT

Company : Murphy Oil Co.
Address : Poplar, Mt.
Lease : S.W.D.
Well : Huber #5
Sample Pt. : Pump

Date : 1/5/99
Date Sampled : 1/4/99
Analysis No. : 1

	ANALYSIS		mg/L		* meq/L
1.	pH	7.5			
2.	H2S	pos.			
3.	Specific Gravity	1.060			
4.	Total Dissolved Solids		106416.7		
5.	Suspended Solids				
6.	Dissolved Oxygen		.0		
7.	Dissolved CO2		400		
8.	Oil In Water				
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	305.0	HCO3	5.0
12.	Chloride	Cl	63900.0	Cl	1802.5
13.	Sulfate	SO4	1300.0	SO4	27.1
14.	Calcium	Ca	2350.0	Ca	117.3
15.	Magnesium	Mg	1095.0	Mg	90.1
16.	Sodium (calculated)	Na	37410.7	Na	1627.3
17.	Iron	Fe	1.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	55.0		
20.	Total Hardness (CaCO3)		10000.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

117	*Ca <----- *HCO3	5
	/------->	
90	*Mg -----> *SO4	27
	<----------/	
1627	*Na -----> *Cl	1803

Saturation Values Dist. Water 20 C

CaCO3	13 mg/L
CaSO4 * 2H2O	2090 mg/L
BaSO4	2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	5.0	405
CaSO4	68.1	27.1	1843
CaCl2	55.5	85.2	4727
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	90.1	4289
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	1627.3	95097

Baker Petrolite Chemical Group

Respectfully submitted,
Tom Willer
Tom Willer

BAKER PETROLITE
A Baker Hughes company

HALLIBURTON ENERGY SERVICES

ACQUIRE Version 2.16

CUSTOMER AND JOB INFORMATION

Customer	MURPHY OIL USA, INC.	Date	13-Sep-1997
Contractor	H & H WELL SERVICE	County	ROOSEVELT
Lease	HUBER	Town	28N
Location	N.E. POPLAR	Section	10
Formation	KIBBEY	Range	51E
Job Type	Acidize Formation	Permit No	
Country	USA	Well No	#5 SWDW
State	MT	Field Name	EAST POPLAR

Customer Representative RAY REEDE Halliburton Operator JEFF LEDOSQUET Ticket No. 2392

STAGE DESCRIPTIONS

11.9 BBLS 15% HCL ACID
40 BBLS SALT WATER FLUSH
ISIP

WELL CONFIGURATION INFORMATION

Packer Type BASIN Depth 5141 ft
Bottom Hole Temp. 200.0 Deg F

PIPE CONFIGURATION

Wellbore Segment Number	Measured Depth (ft)	TVD (ft)	Casing ID (inch)	Casing OD (inch)	Tubing ID (inch)	Tubing OD (inch)
1	5141	5141	4.892	5.500	2.441	2.875
2	5187	5187	4.892	5.500	0.000	0.000

1187

PERFORATIONS

Perforation Interval	Top (ft)	Bottom (ft)	Shots per (ft)
1	5185	5187	4

REMARKS ABOUT JOB

THANK YOU FOR USING HALLIBURTON

JEFF LeDOSQUET

Huber 5-D

HALLIBURTON Well No. #5 SWDW Lease HUBER Job Id 002920102392

ENERGY SERVICES Customer MURPHY OIL USA, INC. Date 09-13-97

JOB SUMMARY Job Type ACID JOBS Operator JEFF LEDOSQUET

Job Information

CONTRACTOR: H & H WELL SERVICE
JOB PURPOSE: 05 ACID JOBS
JOB DESCRIPTION: ACIDIZE FORMATION
PERFORMED THRU:
CALLED OUT: 09-13-97 05:00
ON LOCATION: 09-13-97 07:50
STARTED: 09-13-97 09:04
COMPLETED: 09-13-97 10:01

Well Information

OWNER NAME: MURPHY EXPLORATION
WELL TYPE: 011 DISPOSAL WELL WELL CATEGORY: 002 Workover
MUD TYPE: MUD WEIGHT:
BOT HOLE TEMP: 200 BOT HOLE PSI:
TOTAL DEPTH: PBTD:

Pressures in PSI

AVERAGE: 2406 MAXIMUM: 3265
BREAKDOWN: 3090
FLUSH: FRAC GRADIENT: .72
ISIP: 1351 5-MIN: 1141
10-MIN: 1068 15-MIN: 999

Volumes

PREPAD:		BBL	PREPAD TYPE:			
LOAD & BKDN:		BBL	TREATMENT:	11.9	BBL	
FLUSH:	40	BBL				
PAD:		BBL				
GAS ASSIST:		TON	TYPE:		AT:	SCF/BBL
FOAM QUALITY:		%	TOTAL VOL FOAM		BBL	
TOTAL VOLUME:	51.9	BBL				

Hydraulic Horsepower

ORDERED: AVAILABLE: USED: 157

Average Rates in BPM

TREATING: 1.98 FLUSH: OVERALL:

FIELD TICKET

HALLIBURTON
ENERGY SERVICES

OPERATOR: JEFF LEDOSQUET

JOB ID: 002920102392

Well No-Farm or Lease	County	State	Date
#5 HUBER	ROOSEVELT	MT	09-13-97

Charge To	Owner	Contractor
MURPHY OIL USA, INC.	MURPHY EXPLORATION	H & H WELL SERVICE

Address	Service Centers	Shipped Via	Mileage
BOX 547	WILLISTON	CO TRUCK	75
POPLAR, MT 59255			

Well Type	Well Category	Field
011 DISPOSAL WELL	002 WORKOVER	E. POPLAR .

Job Purpose	Section	Township	Range
ACIDIZE FORMATION	10	28N	51E

L	Price Ref.	Description	Quantity	U/M	Unit Price	Amount
	300-111	MILEAGE FOR STIMULATION EQUIP	150.00	MI	3.20	480.00
			1.00	UNT		
	300-112	MILEAGE FOR STIMULATION CREW	150.00	MI	1.95	292.50
			1.00	UNT		
	200-024	PUMPING SERVICE FIRST 4 HRS	3300.00	PSI	1025.00	1025.00
			1.00	PMP		
	307-772	COMPUPAC SYSTEM W/HALLIBURTON	1.00	JOB	832.00	832.00
	307-660	FLOWMETER	1.00	EA	277.00	277.00
	307-009	TUBING VALVE	1.00	EA	242.00	242.00
	201-004	HYDROCHLORIC ACID	500.00	GAL	2.35	1175.00
			15.00	%		
	218-506	PENN-88 HT	5.00	GAL	56.00	280.00
	210-013	HAI-85M	2.00	GAL	65.25	130.50
	210-016	HII-500	2.00	GAL	78.00	156.00
	218-015	FERCHEK A	10.00	LB	8.56	85.60

SUBTOTAL : 4975.60

Applicable taxes will be added on invoice.

#3137

WORK ORDER CONTRACT

FORM 2315 R-1

JOB ID: 2392

TO: HALLIBURTON ENERGY SERVICES: YOU ARE HEREBY REQUESTED TO FURNISH EQUIPMENT AND SERVICEMEN TO DELIVER AND OPERATE THE SAME AS AN INDEPENDENT CONTRACTOR TO CUSTOMER LISTED BELOW AND DELIVER AND SELL PRODUCTS, SUPPLIES, AND MATERIALS FOR THE PURPOSE OF SERVICING:

WELL NO.	FARM OR LEASE	COUNTY	STATE	WELL PERMIT NO.
#5 SWDW	Huber	Roosevelt	MT	

CUSTOMER	WELL OWNER	JOB PURPOSE
Murphy Oil	Same	Acidize Formation

I ☐ do ☐ do not require IPC (Instrument Protection). ☐ Not offered

THIS CONTRACT MUST BE SIGNED BEFORE WORK IS COMMENCED.

For good and valuable consideration received, Customer (as identified above) and Halliburton Energy Services, a division of Halliburton Company (hereinafter "Halliburton") agree as follows:

A. CUSTOMER REPRESENTATION - Customer warrants that the well is in proper condition to receive the services, equipment, products, and materials to be supplied by Halliburton.

B. PRICE AND PAYMENT - The services, equipment, products, and/or materials to be supplied hereunder are priced in accordance with Halliburton's current price list. All prices are exclusive of taxes. If Customer does not have an approved open account with Halliburton, all sums due are payable in cash at the time of performance of services or delivery of equipment, products or materials. If Customer has an approved open account, invoices are payable on the twentieth day after the date of invoice. Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Halliburton employs an attorney for collection of any account, Customer agrees to pay attorney fees of 20% of the unpaid account, plus all collection and court costs.

C. RELEASE AND INDEMNITY - CUSTOMER AGREES TO RELEASE HALLIBURTON GROUP FROM ANY AND ALL LIABILITY FOR ANY AND ALL DAMAGES WHATSOEVER TO PROPERTY OF ANY KIND OWNED BY, IN THE POSSESSION OF, OR LEASED BY CUSTOMER AND THOSE PERSONS AND ENTITIES CUSTOMER HAS THE ABILITY TO BIND BY CONTRACT. CUSTOMER ALSO AGREES TO DEFEND, INDEMNIFY, AND HOLD HALLIBURTON GROUP HARMLESS FROM AND AGAINST ANY AND ALL LIABILITY, CLAIMS, COSTS, EXPENSES, ATTORNEY FEES AND DAMAGES WHATSOEVER FOR PERSONAL INJURY, ILLNESS, DEATH, PROPERTY DAMAGE AND LOSS RESULTING FROM:

LOSS OF WELL CONTROL; SERVICES TO CONTROL A WILD WELL WHETHER UNDERGROUND OR ABOVE THE SURFACE; RESERVOIR OR UNDERGROUND DAMAGE, INCLUDING LOSS OF OIL, GAS, OTHER MINERAL SUBSTANCES OR WATER; SURFACE DAMAGE ARISING FROM UNDERGROUND DAMAGE; DAMAGE TO OR LOSS OF THE WELL BORE; SUBSURFACE TRESPASS OR ANY ACTION IN THE NATURE THEREOF; FIRE; EXPLOSION; SUBSURFACE PRESSURE; RADIOACTIVITY; AND POLLUTION AND ITS CLEANUP AND CONTROL.

CUSTOMER'S RELEASE, DEFENSE, INDEMNITY AND HOLD HARMLESS OBLIGATIONS WILL APPLY EVEN IF THE LIABILITY AND CLAIMS ARE CAUSED BY THE SOLE, CONCURRENT, ACTIVE OR PASSIVE NEGLIGENCE, FAULT, OR STRICT LIABILITY OF ONE OR MORE MEMBERS OF THE HALLIBURTON GROUP, THE UNSEAWORTHINESS OF ANY VESSEL OR ANY DEFECT IN THE DATA, PRODUCTS, SUPPLIES, MATERIALS OR EQUIPMENT FURNISHED BY HALLIBURTON GROUP WHETHER IN THE DESIGN, MANUFACTURE, MAINTENANCE OR MARKETING THEREOF OR FROM A FAILURE TO WARN OF SUCH DEFECT. "HALLIBURTON GROUP" IS DEFINED AS HALLIBURTON, ITS PARENT, SUBSIDIARY, AND AFFILIATED COMPANIES AND ITS/THEIR OFFICERS, DIRECTORS, EMPLOYEES, AND AGENTS. CUSTOMER'S RELEASE, DEFENSE, INDEMNITY AND HOLD HARMLESS OBLIGATIONS APPLY WHETHER THE PERSONAL INJURY, ILLNESS, DEATH, PROPERTY DAMAGE OR LOSS IS SUFFERED BY ONE OR MORE MEMBERS OF THE HALLIBURTON GROUP, CUSTOMER, OR ANY OTHER PERSON OR ENTITY AND THE CUSTOMER WILL SUPPORT SUCH OBLIGATIONS ASSUMED HEREIN WITH LIABILITY INSURANCE TO THE MAXIMUM EXTENT ALLOWED BY APPLICABLE LAW.

D. EQUIPMENT LIABILITY - Customer shall at its risk and expense attempt to recover any Halliburton equipment lost or lodged in the well. If the equipment is recovered and repairable, Customer shall pay the repair costs, unless caused by Halliburton's sole negligence. If the equipment is not recovered or is irreparable, Customer shall pay the replacement cost, unless caused by Halliburton's sole negligence. If a radioactive source becomes lost or lodged in the well, Customer shall meet all requirements of Section 39.15(a) of the Nuclear Regulatory Commission regulations and any other applicable laws or regulations concerning retrieval or abandonment and shall permit Halliburton to monitor the recovery or abandonment efforts all at no risk or liability to Halliburton. Customer shall be responsible for damage to or loss of Halliburton equipment, products, and materials while in transit aboard Customer-supplied transportation, even if such is arranged by Halliburton at Customer's request, and during loading and unloading from such transport. Customer will also pay for the repair or replacement of Halliburton equipment damaged by corrosion or abrasion due to well effluents.

E. LIMITED WARRANTY - Halliburton warrants only title to the equipment, products, and materials supplied under this contract and that same are free from defects in workmanship and materials for one year from date of delivery. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE BEYOND THOSE STATED IN THE IMMEDIATELY PRECEDING SENTENCE. Halliburton's sole liability and Customer's exclusive remedy in any cause of action (whether in contract, tort, breach of warranty or otherwise) arising out of the sale, lease or use of any equipment, products, or materials is expressly limited to the replacement of such on their return to Halliburton or, at Halliburton's option, to the allowance to Customer of credit for the cost of such items. In no event shall Halliburton be liable for special, incidental, indirect, consequential, or punitive damages. Because of the uncertainty of variable well conditions and the necessity of relying on facts and supporting services furnished by others, HALLIBURTON IS UNABLE TO GUARANTEE THE EFFECTIVENESS OF THE EQUIPMENT, MATERIALS, OR SERVICE, NOR THE ACCURACY OF ANY CHART INTERPRETATION, RESEARCH ANALYSIS, JOB RECOMMENDATION OR OTHER DATA FURNISHED BY HALLIBURTON. Halliburton personnel will use their best efforts in gathering such information and their best judgment in interpreting it, but Customer agrees that Halliburton shall not be liable for and CUSTOMER SHALL INDEMNIFY HALLIBURTON GROUP AGAINST ANY DAMAGES ARISING FROM THE USE OF SUCH INFORMATION, even if such is contributed to by Halliburton's negligence or fault. Halliburton also does not warrant the accuracy of data transmitted by electronic process, and Halliburton will not be responsible for accidental or intentional interception of such data by third parties.

F. GOVERNING LAW - The validity, interpretation and construction of this contract shall be determined by the laws of the jurisdiction where the services are performed or the equipment or materials are delivered.

G. WAIVER - Customer agrees to waive the provisions of the Texas Deceptive Trade Practices-Consumer Protection Act or any similar federal or state statute to the extent permitted by law.

H. MODIFICATIONS - Customer agrees that Halliburton shall not be bound by any modifications to this contract, except where such modification is made in writing by a duly authorized executive officer of Halliburton. Requests for modifications should be directed to the Vice President - Legal, 5151 San Felipe, Houston, Texas 77056.

I HAVE READ AND UNDERSTAND THIS CONTRACT AND REPRESENT THAT I AM AUTHORIZED TO SIGN THE SAME AS CUSTOMER OR AS CUSTOMER'S AGENT.

NAME (PRINTED)	CUSTOMER OR CUSTOMER'S AGENT SIGNATURE	DATE	TIME
	X Ray Reede	9-13-97	☐ AM ☐ PM

Customer Acceptance of Materials and Services	SIGNED
The Customer hereby acknowledges receipt of the materials and services described on the attached field ticket which carries Job ID number indicated above.	X Ray Reede

HALLIBURTON

HALLIBURTON ENERGY SERVICES

FORM 1911 R-10

TICKET CONTINUATION

CUSTOMER COPY

TICKET No. 279925

CUSTOMER	WELL	DATE	PAGE	OF
Murphy Exploration & Prod.	Huber #5 SWDW	09/15/97	2	2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
504-043	516.00270				Premium Cement G	50	Sx			11 02	551 00
508-028	516.00289				Silica Flour 35% mixed w/ 50 Sx	1645	LB			23	378 35
507-475	890.50914				HR-12 0.25% mixed w/ 50 Sx	12	LB			3 80	45 60
507-778	516.00227				Halad 344 0.25% mixed w/ 50 Sx	12	LB			30 05	360 60
507-153	516.00161				CFR-3 0.15% mixed w/ 50 Sx	7	LB			5 85	40 95
500-207					SERVICE CHARGE	CUBIC FEET 75				1 55	116 25
500-306					MILEAGE CHARGE: TOTAL WEIGHT 6,376; LOADED MILES 75	TON MILES 239.10				1 18	282 13

CONTINUATION TOTAL 1774 86

No. B 357417

HALLIBURTON

HALLIBURTON ENERGY SERVICES

FORM 1911 R-10

TICKET CONTINUATION

CUSTOMER COPY

TICKET No. 177475

CUSTOMER	WELL	DATE	PAGE	OF
Murphy Exploration & Prod.	Huber #5 SWDW	09/15/97	2	2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCOUNTING ACCT	ACCOUNTING DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
504-043	516.00270				Premium Cement-G	50	Sx			11 02	551 00
508-028	516.00289				Silica Flour 35% mixed w/ 50 Sx	1645	LB			23	378 35
507-475	890.50914				HR-12 0.25% mixed w/ 50 Sx	12	LB			3 80	45 60
507-778	516.00227				Halad 344 0.25% mixed w/ 50 Sx	12	LB			30 05	360 60
507-153	516.00161				CFR-3 0.15% mixed w/ 50 Sx	7	LB			5 85	40 95
500-207					SERVICE CHARGE	75	CUBIC FEET			1 55	116 25
500-306					MILEAGE CHARGE — TOTAL WEIGHT 6,376 — LOADED MILES 75	239.10	TON MILES			1 18	282 13

CONTINUATION TOTAL 1934 53

No. B 357417

HALLIBURTON JOB LOG 4239-5

REGION: North America	NWA/COUNTRY: U.S.A	BDA/STATE: [illegible]	COUNTY: [illegible]
MBU ID/EMP #: [illegible]	EMPLOYEE NAME: [illegible]	PSL DEPARTMENT: [illegible]	
LOCATION: [illegible]	COMPANY: [illegible]	CUSTOMER REP / PHONE: [illegible]	
TICKET AMOUNT:	WELL TYPE: [illegible]	API / UWI #:	
WELL LOCATION: [illegible]	DEPARTMENT: [illegible]	JOB PURPOSE CODE: [illegible]	
LEASE / WELL #: [illegible]	SEC / TWP / RNG:		

TICKET #: [illegible] TICKET DATE: [illegible]

HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS
[illegible]							

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL)(GAL)	PUMPS T	PUMPS C	PRESS. (psi) Tbg	PRESS. (psi) Csg	JOB DESCRIPTION / REMARKS
	0630							On Loc. (Mountain Time)
	0635							Rig Up
	0735							Safety Meeting
	0752	1	1.2		1		700	Set Packer - Press. Up Annulus - S.W.
	0753	1	1.5	1		5000	700	Test Lines - S.W.
	0756	.5	3.5	1		1400	650	S.W. - Est. Injection Rate
	0828	2	10	1		500	–	F.W. Ahead - Packer Released
	0836	2	13.9	1		750	250	Mix & Pump Cmt @ 15.6# - 7.7 BBL H2O To Mix
	0848	2	10	1		750	250	F.W. Displ.
	0853	–	10	1		500	300	F.W. - Shut Down - Set Packer
	0854	1	–	1		1000	300	S.W. - Displ.
	0906	1/4	13	1		1350	400	S.W. - Slow Rate
	0916	–	15 3/4	1		4000	1000	S.W. - Shut Down
	0922	–	15 3/4	1		4000	800	S.W. - Release Press.
	0926							Release Packer
	0927	2	40		1	600	600	S.W. - Reverse Out - Reversed Out 5 1/2 BBL (20 Sks) of Cmt. To Surface
	0948			1				Set Packer
	0950	1/2	3/4	1		2500	–	Press. Up Squeeze -
	0957							Press Bled Off To 2350#
	0957	1/4	–	1		2500	–	Press. Up Tubg.
	1003			1		2500	–	Release Press - Tubg. Didn't Die
	1009	1/4	3/4	1		2500	–	Press. Up Tubg.
	1018	–	–	1		2450	–	Release Press. - Pull Up Hole 10 Stands
	1042	1/2	2 1/2	1		1000	–	Press. Up Tubg. & [illegible]
	1050					1000	–	Shut In Well
	1055							Rig Down
	1130							Job Complete
								Thank You
								Gary & Crew

HALLIBURTON®

HALLIBURTON ENERGY SERVICES

1906-O

CHARGE TO: Murphy Exploration & Prod.

ADDRESS

CITY, STATE, ZIP CODE

CUSTOMER COPY

TICKET No. 279925 - 8

PAGE 1 OF 2

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY/OFFSHORE LOCATION	DATE	OWNER
1. Williston N.D.	5-54DW	Haber	Roosevelt	MT.		9-16-97	Same

TICKET TYPE	NITROGEN	CONTRACTOR	RIG NAME/NO.	SHIPPED VIA	DELIVERED TO	ORDER NO.
☒ SERVICE ☐ SALES	JOB? ☐ YES ☒ NO	H & H Well Serv.		Trk.	Loc.	

WELL TYPE	WELL CATEGORY	JOB PURPOSE	WELL PERMIT NO.	WELL LOCATION
11	02	975		

REFERRAL LOCATION

INVOICE INSTRUCTIONS Squeeze Perforations

JOB PURPOSE	PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
	000-117		1			MILEAGE	150	Mi.	1	Trk.	3.20	480.00
	000-119		1			Crew Mileage	150	Mi.	1	Un.	1.95	292.50
	009-134	009-019	1			Pumping Charge	5187	Ft.	6	Hrs		3080.00
	019-500		1			Radioactive Densometer	1	Job				330.00
	019-225		1			Interc Valve Rental	1	Ea.				45.00
	000-151		1			Iron Safety Inspection Truck.	1	Ea				30.00

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY,** and **LIMITED WARRANTY** provisions.

X Ray Reedle

DATE SIGNED 9-16-97 TIME SIGNED 6:45 ☒ A.M. ☐ P.M.

I ☐ do ☐ do not require IPC (Instrument Protection). ☐ Not offered

TYPE LOCK	SUB SURFACE SAFETY VALVE WAS: ☐ PULLED & RETURN ☐ PULLED ☐ RUN			PAGE TOTAL	4259.50
BEAN SIZE	TYPE OF EQUALIZING SUB.	CASING PRESSURE		FROM CONTINUATION PAGE(S)	1774.50
DEPTH	TUBING SIZE	TUBING PRESSURE	WELL DEPTH	Disc.	2221.60
SPACERS	TREE CONNECTION	TYPE VALVE		SUB-TOTAL APPLICABLE TAXES WILL BE ADDED ON INVOICE	3782.40

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowleges receipt of the materials and services listed on this ticket.

CUSTOMER OR CUSTOMER'S AGENT (PLEASE PRINT)	CUSTOMER OR CUSTOMER'S AGENT (SIGNATURE)	HALLIBURTON OPERATOR/ENGINEER	EMP #	HALLIBURTON APPROVAL
	X Ray Reedle	C. Daniel	60067	

HALLIBURTON

JOB SUMMARY 4239-1

REGION: North America	NWA/COUNTRY: U.S.A.	BDA / STATE: Mont.	COUNTY: Roosevelt
MBU ID / EMP #: WI0101 600087	EMPLOYEE NAME: C. Daniel	PSL DEPARTMENT: Cmt.	
LOCATION: Williston N.D.	COMPANY: Mckenzie Exploration	CUSTOMER REP / PHONE: Ray Reede	
TICKET AMOUNT:	WELL TYPE: Old SWD	API / UWI #:	
WELL LOCATION: N.E. Poplar Mt.	DEPARTMENT: Cmt.	JOB PURPOSE CODE: 075	
LEASE / WELL #: Huber #5 SWD W	SEC / TWP / RNG:		

TICKET #: 27125 — TICKET DATE: 9-16-97

HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS

HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES

Form Name _____ Type: _____
Form Thickness _____ From _____ To _____
Packer Type _____ Set At 4951
Bottom Hole Temp. _____ Pressure _____
Misc. Data _____ Total Depth _____

	CALLED OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE	9-16	9-16	9-16	9-16
TIME	0300 M.T.	0630 M.T.	0752 M.T.	1130 M.T.

TOOLS AND ACCESSORIES

TYPE AND SIZE	QTY	MAKE
Float Collar		
Float Shoe		
Guide Shoe		
Centralizers		
Bottom Plug		
Top Plug		
Head		
Packer		
Other		

WELL DATA

	NEW/USED	WEIGHT	SIZE	FROM	TO	MAX ALLOW
Casing	U	17	5½	G.L.	T.D.	
Liner						
Liner						
Tbg/D.P.	U	6.5	2⅞	G.L.	4951	
Tbg/D.P.						
Open Hole						SHOTS/FT.
Perforations				5182		
Perforations						
Perforations						

MATERIALS

Treat Fluid _____ Density _____ Lb/Gal
Disp. Fluid _____ Density _____ Lb/Gal
Prop. Type _____ Size _____ Lb. _____
Prop. Type _____ Size _____ Lb. _____
Acid Type _____ Gal. _____ % _____
Acid Type _____ Gal. _____ % _____
Surfactant _____ Gal. _____ In _____
NE Agent _____ Gal. _____ In _____
Fluid Loss _____ Gal/Lb _____ In _____
Gelling Agent _____ Gal/Lb _____ In _____
Fric. Red. _____ Gal/Lb _____ In _____
Breaker _____ Gal/Lb _____ In _____
Blocking Agent _____ Gal/Lb _____
Perfpac Balls _____ Qty. _____
Other _____
Other _____
Other _____
Other _____

HOURS ON LOCATION		OPERATING HOURS	
DATE	HOURS	DATE	HOURS
9-16	5	9-16	3
TOTAL		TOTAL	

DESCRIPTION OF JOB: Squeeze Perforations

HYDRAULIC HORSEPOWER
ORDERED _____ Avail. _____ Used _____

AVERAGE RATES IN BPM
TREATED _____ Disp. _____ Overall _____

CEMENT LEFT IN PIPE
FEET _____ Reason _____

CEMENT DATA

STAGE	SACKS	CEMENT	BULK/SKS	ADDITIVES	YIELD	LBS/GAL
	50	Prem	B	35% SSA-1/0.25% HR-12/0.25% Halad-344/0.15% CFR-3	1.56	13.6

Circulating _____ Displacement _____ Preflush: Gal - BBI _____ Type _____
Breakdown _____ Maximum _____ Load & Bkdn: Gal - BBI _____ Pad: BBI - Gal _____
Average _____ Frac Gradient _____ Treatment Gal - BBI _____ Disp: BBI - Gal _____
Shut In: Instant _____ 5 Min _____ 15 Min _____ Cement Slurr Gal - BBI _____
Total Volume Gal - BBI _____

Frac Ring #1 | Frac Ring #2 | Frac Ring #3 | Frac Ring #4

THE INFORMATION STATED HEREIN IS CORRECT

CUSTOMER'S REPRESENTATIVE SIGNATURE

Customer: MURPHY O[illegible] USA, INC.
Well Desc: Huber 5
Formation: MC & Nisku

Date 11-Nov-1997
Ticket #: 02462
Job Type: Acid Ballout

OPERATOR LOG

Chart		Time	Slurry Rate (bpm)	Slurry Stage Volume (bbl)	Tubing Press. (psi)	Remark
Event	#1	08:50:31	0.00	0.0	0	Start Job
Event	#2	08:50:35	0.05	0.0	837	Safety Meeting
Event	#3	08:50:39	0.00	0.0	1573	Test Lines
Stage	#1	08:53:00	0.11	11.7	188	Pump Acid
Stage	#2	08:57:55	3.73	106.3	1965	Start Acid w/180 1.3SG Balls
Event	#4	09:05:49	3.92	0.0	2052	Acid at perfs
Event	#5	09:15:43	4.03	0.0	2126	74 balls at perfs - ball action
Stage	#3	09:22:38	5.59	61.2	2058	Start Flush
Stage	#4	09:32:17	0.00	3.6	212	Stop Pumping
Event	#6	09:32:25	0.00	0.0	157	ISIP Tubing Press 157 (psi)
Event	#7	09:35:27	1.40	0.0	-51	Vacuum
Event	#8	09:35:36	1.41	0.0	-52	End Job

HALLIBURTON	Well No. #5 SWDW	Lease HUBER	Job Id 002920102462
ENERGY SERVICES	Customer MURPHY OIL USA, INC.		Date 11-11-97
JOB SUMMARY	Job Type ACID JOBS		Operator BOB SCHREIBER

Well Configuration

PIPE	FROM	TO	SIZE	WEIGHT	MAX/PSI	NEW/USED
PRODUCTION CASING	0	7276	5.5	17		U
TUBING	0	6171	2.875	6.5	3000	U
PACKER	6135	6140				

Well Perforation

FROM	TO	SHOTS	FORMATION	FORMATION TYPE
6185	6187	4	MISSION CANYON	LIMESTONE
6421	6423	4	MISSION CANYON	LIMESTONE
7242	7250	4	NISKU	LIMESTONE
7272	7276	4	NISKU	LIMESTONE

Materials

CATEGORY	DESCRIPTION	QUANTITY	UNITS	CONCENTRATE	UNITS	MIX
	HYDROCHLORIC ACID	15.000	%			
	HAI-85M	75.000	GAL			
	FERCHEK A	50.000	LB			
	SPERSE-ALL M	50.000	GAL			

Employees and Equipment

EMPLOYEE NAME	EMPL. ID	EQUIPMENT	UNIT NO.	LOCATION
ROBERT SCHREIBER	67985	ACID VAN	420948	WILLISTON
JEFFREY JACOBSON	D8953	ACID PUMPER	75312Z	WILLISTON
JOHN HALAN	J2459	ACID TRANSPORT 40	5713	WILLISTON

Huber 5-0

Farfield Sid 11-12-97

FIELD TICKE'

HALLIBURTON
ENERGY SERVICES

OPERATOR: BOB SCHREIBER

JOB ID: 002920102462

Well No-Farm or Lease	County	State	Date
#5 HUBER	ROOSEVELT	MT	11-11-97

Charge To	Owner	Contractor
MURPHY OIL USA, INC.	MURPHY EXPLORATION	H&H WELL SERVICE

Address	Service Centers	Shipped Via	Mileage
BOX 547 POPLAR, MT 59255	WILLISTON	CO TRUCK	75

Well Type	Well Category	Field
011 DISPOSAL WELL	002 WORKOVER	E. POPLAR

Job Purpose	Section	Township	Range
ACIDIZE FORMATION	10	28N	51E

L	Price Ref.	Description	Quantity	U/M	Unit Price	Amount
	300-111	MILEAGE FOR STIMULATION EQUIP	150.00	MI	3.20	960.00
			2.00	UNT		
	300-112	MILEAGE FOR STIMULATION CREW	150.00	MI	1.95	292.50
			1.00	UNT		
	200-097	PUMP CHARGE W/ HT-400 & VT-12			2800.00	2800.00
	301-085		4.00	HR	PER 4 HR	
			1.00	PMP		
	307-660	FLOWMETER, PER TREATMENT	1.00	JOB	277.00	277.00
	307-772	COMPUPAC SYSTEM W/HALLIBURTON	1.00	JOB	832.00	832.00
	307-009	FRACTURING VALVE 2-2.5	1.00	DAY	242.00	242.00
			1.00	EA		
	313-129	PERFPAC BALLS 1.3	180.00	EA	1.89	340.20
	307-314	SHUR-SHOT BALL INJECTOR			507.00	507.00
			4.00	HR	PER 4 HR	
	201-004	HYDROCHLORIC ACID	15.00	%	2.35	11750.00
			5000.00	GAL		
	210-013	HAI-85M	75.00	GAL	65.25	4893.75
	218-015	FERCHEK A	50.00	LB	8.56	428.00
	218-519	SPERSE-ALL M	50.00	GAL	20.65	1032.50

SUBTOTAL: 24354.95

Applicable taxes will be added on invoice.

14612.97

HALLIBURTON ENERGY SER CES

ACQUIRE Version 2.16

CUSTOMER AND JOB INFORMATION

Customer	MURPHY OIL USA, INC.	Date	11-Nov-1997
Contractor	H&H Well Service	County	ROOSEVELT
Lease	Huber	Town	28N
Location		Section	10
Formation	MC & Nisku	Range	51E
Job Type	Acid Ballout	Permit No	
Country	USA	Well No	5
State	MT	Field Name	E. POPLAR

Customer Representative Ray Reede Halliburton Operator Bob Schreiber Ticket No. 02462

STAGE DESCRIPTIONS

500 gal Acid (no balls)
4500 gal Acid (w/180 balls)
Salt water flush
ISIP

WELL CONFIGURATION INFORMATION

Packer Type Baker Depth 6140 ft
Bottom Hole Temp. 130.0 Deg F

PIPE CONFIGURATION

Wellbore Segment Number	Measured Depth (ft)	TVD (ft)	Casing ID (inch)	Casing OD (inch)	Tubing ID (inch)	Tubing OD (inch)
1	6140	6140	4.778	5.500	2.441	2.875
2	7276	7276	4.778	5.500	0.000	0.000

PERFORATIONS

Perforation Interval	Top (ft)	Bottom (ft)	Shots per (ft)
1	6185	6423	4
2	7242	7276	4

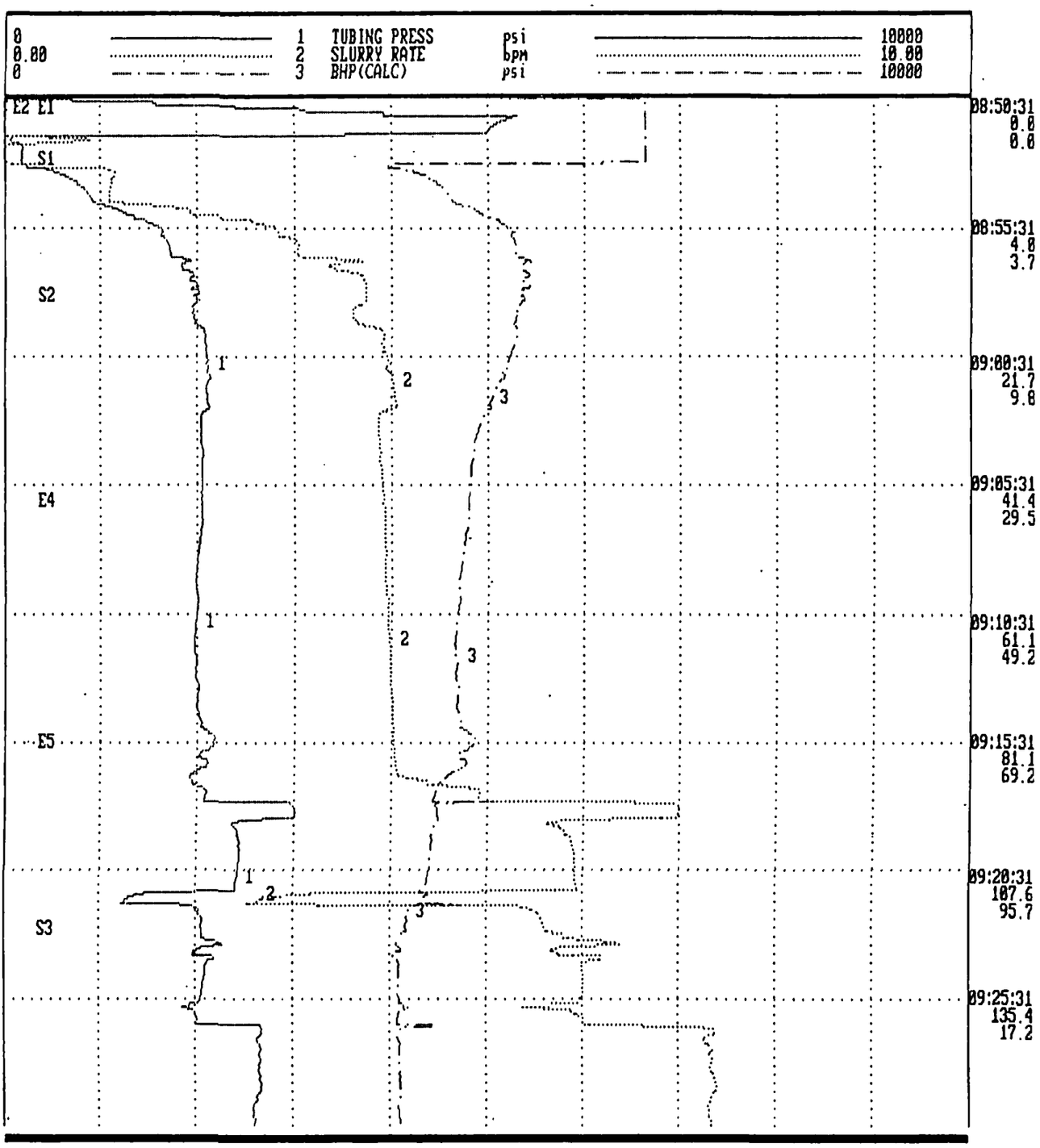
REMARKS ABOUT JOB

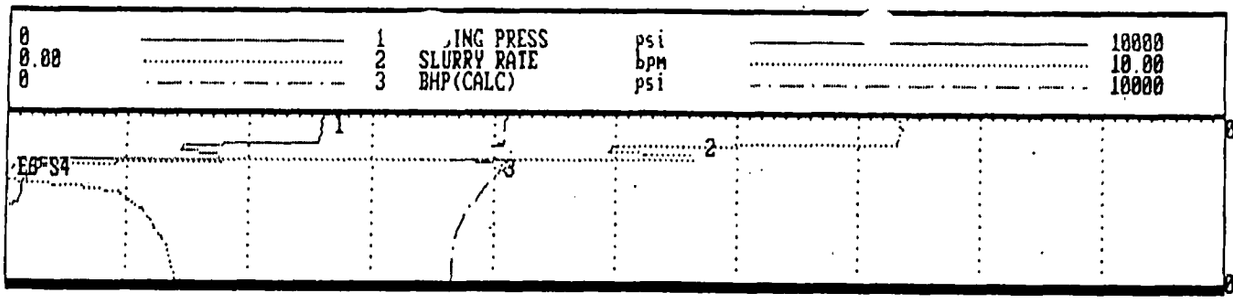
THANK YOU FOR USING HALLIBURTON ENERGY SERVICES

Customer: MURPHY OIL USA, INC.
Well Desc: Hubei
Formation: MC & Nisku

Date: 11-Nov-1997
Ticket #: 02462
Job Type: Acid Ballout

1. Slurry Volume (bbl)
2. Stage Volume (bbl)




0
0.00
0
1 ING PRESS psi 10000
2 SLURRY RATE bpm 10.00
3 BHP(CALC) psi 10000
1
2
3
EB-S4
09:30:31
170.6
52.3
09:35:36

Customer: MURPHY O[illegible] USA, INC.
Well Desc: Huber 5
Formation: MC & Nisku

Date 11-Nov-1997
Ticket #: 02462
Job Type: Acid Ballout

JOB SUMMARY

JOB START TIME: 08:50:31
JOB END TIME: 09:35:36
JOB DURATION: 00:45:05

STAGES AND EVENTS:

Chart	Time	Slurry Rate (bpm)	Slurry Stage Volume (bbl)	Tubing Press. (psi)	Remark
Event #1	08:50:31	0.00	0.0	0	Start Job
Event #2	08:50:35	0.05	0.0	837	Safety Meeting
Event #3	08:50:39	0.00	0.0	1573	Test Lines
Stage #1	08:53:00	0.11	11.7	188	Pump Acid
Stage #2	08:57:55	3.73	106.3	1965	Start Acid w/180 1.3SG Balls
Event #4	09:05:49	3.92	0.0	2052	Acid at perfs
Event #5	09:15:43	4.03	0.0	2126	74 balls at perfs - ball action
Stage #3	09:22:38	5.59	61.2	2058	Start Flush
Stage #4	09:32:17	0.00	3.6	212	Stop Pumping
Event #6	09:32:25	0.00	0.0	157	ISIP Tubing Press 157 (psi)
Event #7	09:35:27	1.40	0.0	-51	Vacuum
Event #8	09:35:36	1.41	0.0	-52	End Job

Customer: MURPHY O[illegible] USA, INC.
Well Desc: Huber 5
Formation: MC & Nisku

Date: 11-Nov-1997
Ticket #: 02462
Job Type: Acid Ballout

STAGE SUMMARY

Stage Times

Stage	Start Time	End Time	Elapsed Time
1	08:53:00	08:57:55	00:04:55
2	08:57:55	09:22:38	00:24:43
3	09:22:38	09:32:17	00:09:39
4	09:32:17	09:35:36	00:03:19
Total	08:53:00	09:35:36	00:42:36

AVERAGES OR VOLUMES PER STAGE -- Planned Volume vs. Actual Volume

Stage	Planned Sl Volume (bbl)	Slurry Volume (bbl)
1	11.9	11.7
2	107.1	106.3
3	63.5	61.2
4	0.0	3.6
Tot/Avg	182.5	182.9

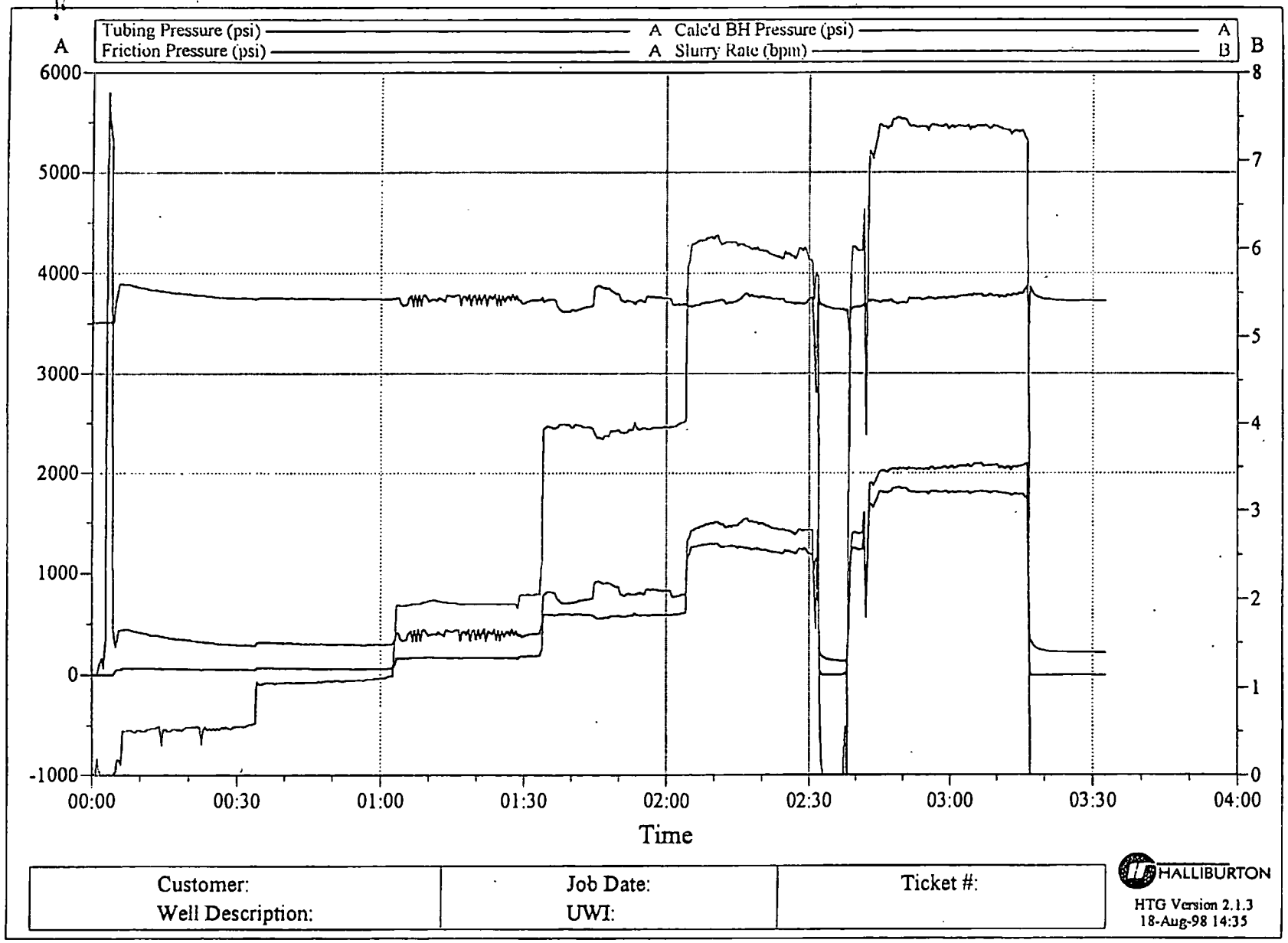
AVERAGES OR VOLUMES PER STAGE -- Strip Chart Variables

Stage	Tubing Pressure (psi)	Slurry Rate (bpm)	BHP (Calc) Pressure (psi)
1	1372	2.38	4978
2	2102	4.30	4763
3	2240	6.36	4095
4	0	0.00	0
Tot/Avg	2045	4.56	4626

MAXIMUM VALUE PER STAGE -- Strip Chart Variables

Stage	Tubing Pressure (psi)	Slurry Rate (bpm)	BHP (Calc) Pressure (psi)
1	2028	3.74	6636
2	3021	7.01	5428
3	2691	7.41	4608
4	0	0.00	0
Max Job	3021	7.41	6636

Stage	Tubing Pressure (psi)	BHP (Calc) Pressure (psi)
1	444	3903
2	319	3765
3	446	3797
4	926	3882
5	1545	3815
6	2100	3869
Max Job	2100	3903



Customer:	Job Date:	Ticket #:
Well Description:	UWI:	

HALLIBURTON

HTG Version 2.1.3
18-Aug-98 14:35

HALLIBURTON®

HALLIBURTON ENERGY SERVICES

1906-Q

CHARGE TO: Murphy Oil

ADDRESS:

CITY, STATE, ZIP CODE:

CUSTOMER COPY — TICKET No. 444329 - 6

PAGE 1 OF

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY/OFFSHORE LOCATION	DATE	OWNER
1. Williston	S-D	Huber	Roosevelt	Mont		8-18	
2.	TICKET TYPE: ☐ SERVICE ☐ SALES / NITROGEN JOB? ☐ YES ☐ NO	CONTRACTOR: None	RIG NAME/NO.	SHIPPED VIA: Cot K	DELIVERED TO: Loc	ORDER NO.	
3.	WELL TYPE	WELL CATEGORY	JOB PURPOSE		WELL PERMIT NO.	WELL LOCATION	
4.							
REFERRAL LOCATION	INVOICE INSTRUCTIONS						

JOB PURPOSE	PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
						MILEAGE						

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY,** and **LIMITED WARRANTY** provisions.

X Ray Keede

DATE SIGNED: 8-18-98 TIME SIGNED: 0800 ☐ A.M. ☐ P.M.

I ☐ do ☐ do not require IPC (Instrument Protection). ☐ Not offered

TYPE LOCK	SUB SURFACE SAFETY VALVE WAS: ☐ PULLED & RETURN ☐ PULLED ☐ RUN		PAGE TOTAL
BEAN SIZE	TYPE OF EQUALIZING SUB.	CASING PRESSURE	FROM CONTINUATION PAGE(S)
DEPTH	TUBING SIZE / TUBING PRESSURE / WELL DEPTH		
SPACERS	TREE CONNECTION	TYPE VALVE	SUB-TOTAL APPLICABLE TAXES WILL BE ADDED ON INVOICE

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowleges receipt of the materials and services listed on this ticket.

CUSTOMER OR CUSTOMER'S AGENT (PLEASE PRINT)	CUSTOMER OR CUSTOMER'S AGENT (SIGNATURE)	HALLIBURTON OPERATOR/ENGINEER	EMP #	HALLIBURTON APPROVAL
Kay Keede	X Ray Keede	Gary D Lasley	57079	

Financial

Field Ticket General

Operator:	MURPHY OIL CO	Job Date:	18-Aug-98
Contractor:		Ticket Number:	444329
Customer:	MURPHY OIL CO	Job ID:	
Cust Addr1:		Invoice Number:	
Cust Addr2:		Oper Well ID No:	
Cust City:		Customer PO No:	
Cust State:		Halliburton Area:	Rockies NWA
Cust ZIP:		Well Permit No:	
Cust Phone:		Well Category:	Development
Lease:	HUBER	Field:	
Well Number:	5D	Reservoir Type:	Oil
County:	Roosevelt	Job Purpose:	
State:	Montana	Shipped Via:	
Legal Desc:	10-28N-51E	Mileage:	

Field Ticket Items

#	Ref No	Description	Disc	Quantity	UOM	Per	Unit Price	Amount
10	300111	MILEAGE FOR STIMULATION EQUIP		170	MI		3.65	730.00
				1	UNT			
20	300112	MILEAGE FOR STIMULATION CREW		170	MI		2.15	215.00
				1	UNT			
40	307772	COMPUPAC SYSTEM W/HALLIBURTON		1	JOB		873.60	873.60
60	307660	FLOWMETER, PER TREATMENT		1	JOB		290.85	290.85
70	200024	PUMPING SERVICE FIRST 4 HRS		2000	PSI		997.50	997.50
				1	PMP			
80	307009	FRACTURING VALVE 2-2.5		1	DAY		278.30	278.30

SubTotal	3385.25
Discounted SubTotal	3385.25

Executive Summary

Zones of Interest

Top Meas Depth, ft:	6185	Formation Type:	
Bottom Meas Depth, ft:	7276	Permeability, md:	
Gross Height, ft:	1091	Porosity, %:	
Net Height, ft:		Poisson's Ratio:	
		Young's Modulus, psi:	
Formations & Named Zones:		Virgin BHP, psi:	
M. C.		BHP, psi:	
		BHST, °F:	

Treatment

			Average	Maximum	Available
Pad Fluid Type:		Surf Pres, psi:			
Prop Fluid Type:		Rate, bpm:			
Proppant Type:		HHP:			
N2 Quality, %:		Prop Conc, ppg:			
CO2 Quality, %:					
			Initial	**Middle**	**Final**
Line Test, psi:		ISIP, psi:	378		
Breakdown, psi:		Hydrostatic, psi:	3518		
Avg BHTP, psi:					
BHTT, °F:			**5 Min**	**10 Min**	**15 Min**
Mid-Perf TVD, ft:	6730.5	Decline, psi:	224	217	215
Frac Grad, psi/ft:	0.58				
				Quantities	
Pad Percentage, %:		Wellbore Capacity, gal:			
Pad Volume, gal:		Flush Volume, gal:			
Job Net Prs Inc, psi:		Liquid Volume, gal:			
FET Fluid Type:		Proppant Pumped, lb:			
FET Pad Percent, %:		Proppant In Formation, lb:			
FET Efficiency, %:		Proppant Placed, % of design:			
FET Net Pres, psi:		N2 Volume, Mscf:			
		CO2 Volume, ton:			

Executive Summary

General

Operating Company:	MURPHY OIL CO	Job Date:	18-Aug-98
Customer:	MURPHY OIL CO	Ticket Number:	444329
Lease:	HUBER	Job Number:	1
Well Number:	5D	Operator Well ID:	
		Halliburton Rep:	GARY LACKEY
Job Type:	Conformance	Customer Rep:	RAY REEDE
Fluid System:		Halliburton Svc Area:	Rockies NWA

Well

UWI Type:	HES Ticket Number based	Well Type:	Injection
UWI:	MURPHY	Wellbore Type:	Vertical
Country:	United States		
State:	Montana	Primary Production:	Oil
County:	Roosevelt	Elevation Datum:	Rig Kelly Bushing/Rotary Tbl
Legal Description:	10-28N-51E	Ground Level Elev, ft:	
Field:		ED Ht above GL, ft:	

Wellbore Configuration

Injection Path	Length (ft)	Measured Depth (ft)	True Vertical Depth (ft)	Deviation Angle (deg)	Open Hole Diameter (in)	Casing Grade	Casing OD (in)	Casing Weight (lb/ft)	Tubing Grade	Tubing OD (in)	Tubing Weight (lb/ft)
Tubing	6140	6140.0	6140.0	0		L-80	5.5	17	L-80	2.875	6.5
Casing	1136	7276.0	7276.0	0		L-80	5.5	17	L-80		
	7276										

Perforated Intervals

Top MD (ft)	Bottom MD (ft)	Num of Perfs	Perf Density (spf)	Perf Phasing (deg)	Perf Diameter (in)	Perf Orientation
7272	7276	16	4	90	0.23	Standard
7260	7268	32	4	90	0.23	Standard
7240	7250	40	4	90	0.23	Standard
6421	6423	8	4	90	0.23	Standard
6185	6187	8	4	90	0.23	Standard

Packers

Type	Measured Depth (ft)
BAKER	6140

Detail Data

Employees and Equipment

Emp. ID	Employee Name	Equipment Type	Unit No.	Location
57079	GARY LACKEY	ACID VAN	420948	Williston
H4954	CASEY ANDERSON	Acid Pumper	75312	Williston

NOTICE: THIS REPORT IS BASED ON SOUND ENGINEERING PRACTICES, BUT BECAUSE OF VARIABLE WELL CONDITIONS AND OTHER INFORMATION WHICH MUST BE RELIED UPON, HALLIBURTON MAKES NO WARRANTY, EXPRESSED OR IMPLIED, AS TO THE ACCURACY OF THE DATA OR OF ANY CALCULATIONS OR OPINIONS EXPRESSED HEREIN. YOU AGREE THAT HALLIBURTON SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, WHETHER DUE TO NEGLIGENCE OR OTHERWISE ARISING OUT OF OR IN CONNECTION WITH SUCH DATA, CALCULATIONS OR OPINIONS.

Customer: MURPHY OIL CO
Well Desc: HUBER 5D
Formation: M.C.

Date: 18-Aug-1998
Ticket #: 444329.4
Job Type: PUMP TEST

STAGE SUMMARY

Stage Times

Stage	Start Time	End Time	Elapsed Time
1	09:07:22	09:36:30	00:29:08
2	09:36:30	10:05:19	00:28:49
3	10:05:19	10:36:16	00:30:57
4	10:36:16	11:06:46	00:30:30
5	11:06:46	11:44:07	00:37:21
6	11:44:07	12:35:08	00:51:01
Total	09:07:22	12:35:08	03:27:46

AVERAGES OR VOLUMES PER STAGE --

Stage	Tubing Pressure (psi)	Friction Pressure (psi)	Slurry Rate (bpm)	BHP (Calc) Pressure (psi)	Hydraulic Horsepower
1	348	54	0.47	3807	4
2	289	60	1.01	3563	8
3	388	159	1.91	3743	18
4	773	562	3.84	3724	73
5	1279	1181	5.71	3615	200
6	1909	1682	7.05	3741	336
Tot/Avg	893	671	3.54	3746	119

MAXIMUM VALUE PER STAGE --

Stage	Tubing Pressure (psi)	Friction Pressure (psi)	Slurry Rate (bpm)	BHP (Calc) Pressure (psi)	Hydraulic Horsepower
1	444	65	0.60	3903	6
2	319	69	1.13	3765	8
3	446	181	2.05	3797	21
4	926	612	4.04	3882	87
5	1545	1299	6.14	3815	228
6	2100	1859	7.49	3869	381
Max Job	2100	1859	7.49	3903	381

HALLIBURTON ENERGY SERVICES

ACQUIRE Version 2.16

CUSTOMER AND JOB INFORMATION

Customer	MURPHY OIL CO	Date	18-Aug-1998
Contractor	MOWE	County	ROOSEVELT
Lease	MURFR	Town	29N
Location	N.W. BROCKTON	Section	10
Formation	M.C.	Range	51E
Job Type	PUMP TEST	Permit No	
Country	U.S.A.	Well No	50
State	MONT	Field Name	

Customer Representative RAY REEDF Halliburton Operator GARY LACKEY Ticket No. 444329.4

STAGE DESCRIPTIONS

PUMP .5 BLS /MIN
PUMP 1 BL /MIN
2BL /MIN
4BL /MIN
6 BL /MIN
8 BL /MIN

WELL CONFIGURATION INFORMATION

Packer Type RAKER Depth 6140 ft
Bottom Hole Temp. 234.0 Deg F

PIPE CONFIGURATION

Wellbore Segment Number	Measured Depth (ft)	TVD (ft)	Casing ID (inch)	Casing OD (inch)	Tubing ID (inch)	Tubing OD (inch)
1	6140	6140	4.892	5.500	2.441	2.875
2	7776	7776	4.892	5.500	0.000	0.000

PERFORATIONS

Perforation Interval	Top (ft)	Bottom (ft)	Shots per (ft)
1	6185	6187	4
2	6421	6423	4
3	7240	7276	4

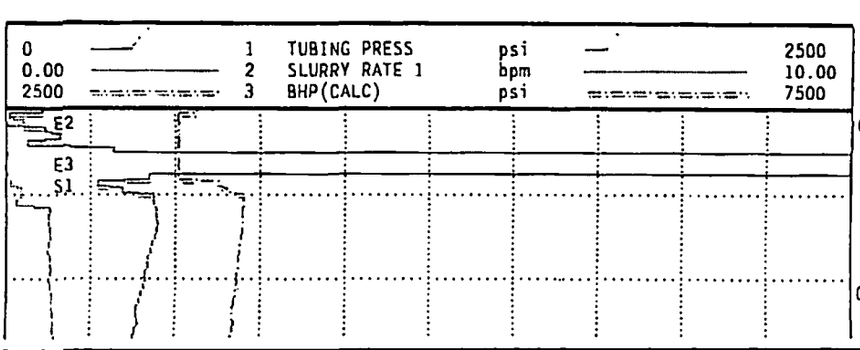
REMARKS ABOUT JOB

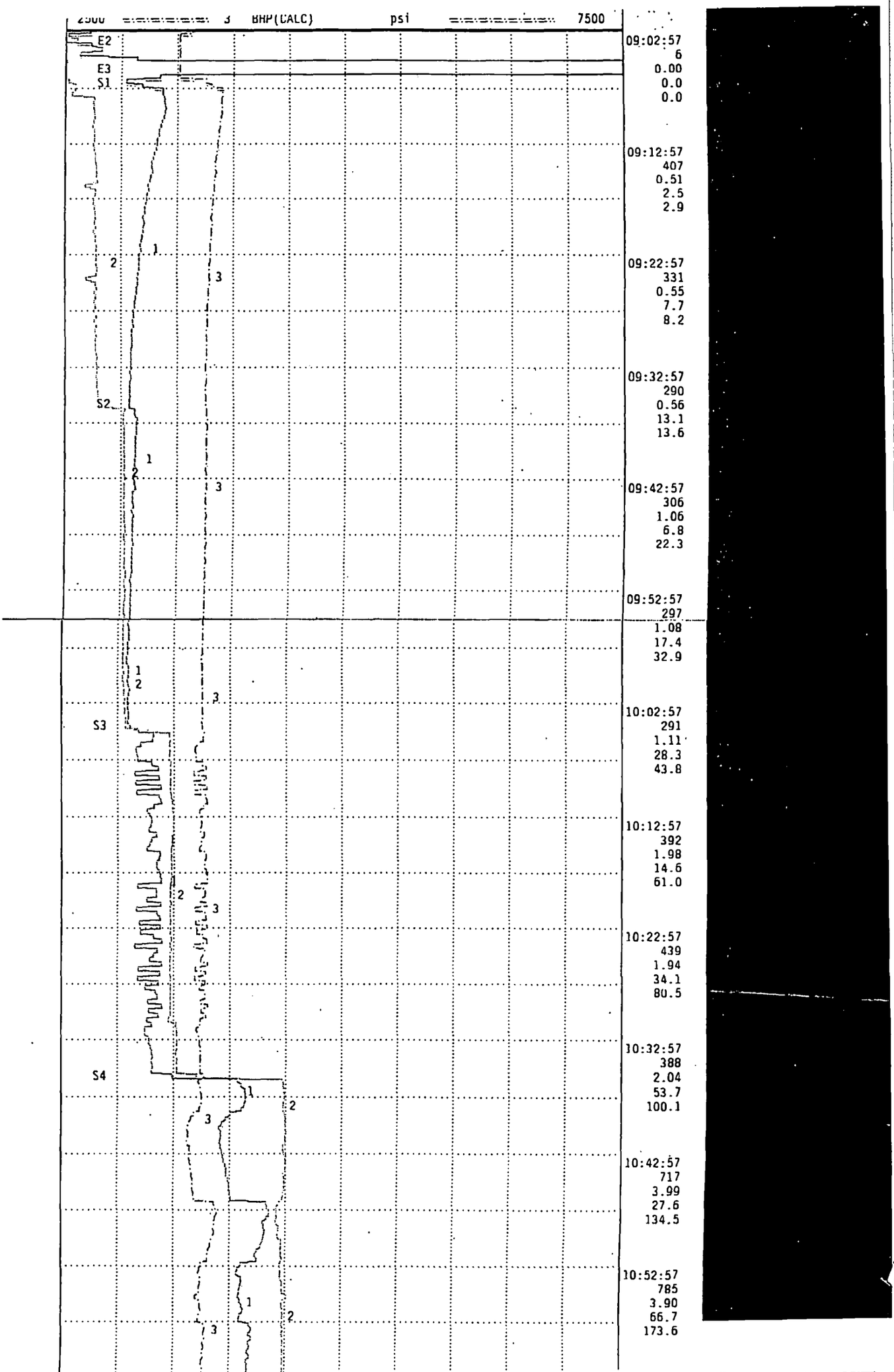
THANK YOU FOR USING HALLIBURTON ENERGY SERVICES

GARY & CREW

##########
PLAYBACK STRIP CHART
##########

1. Tubing Press (psi)
2. Slurry Rate 1 (bpm)
3. Stage Volume (bbl)
4. Job Volume (bbl)




2500
3
BHP(CALC)
psi
7500
E2
E3
S1
S2
S3
S4
09:02:57
6
0.00
0.0
0.0
09:12:57
407
0.51
2.5
2.9
09:22:57
331
0.55
7.7
8.2
09:32:57
290
0.56
13.1
13.6
09:42:57
306
1.06
6.8
22.3
09:52:57
297
1.08
17.4
32.9
10:02:57
291
1.11
28.3
43.8
10:12:57
392
1.98
14.6
61.0
10:22:57
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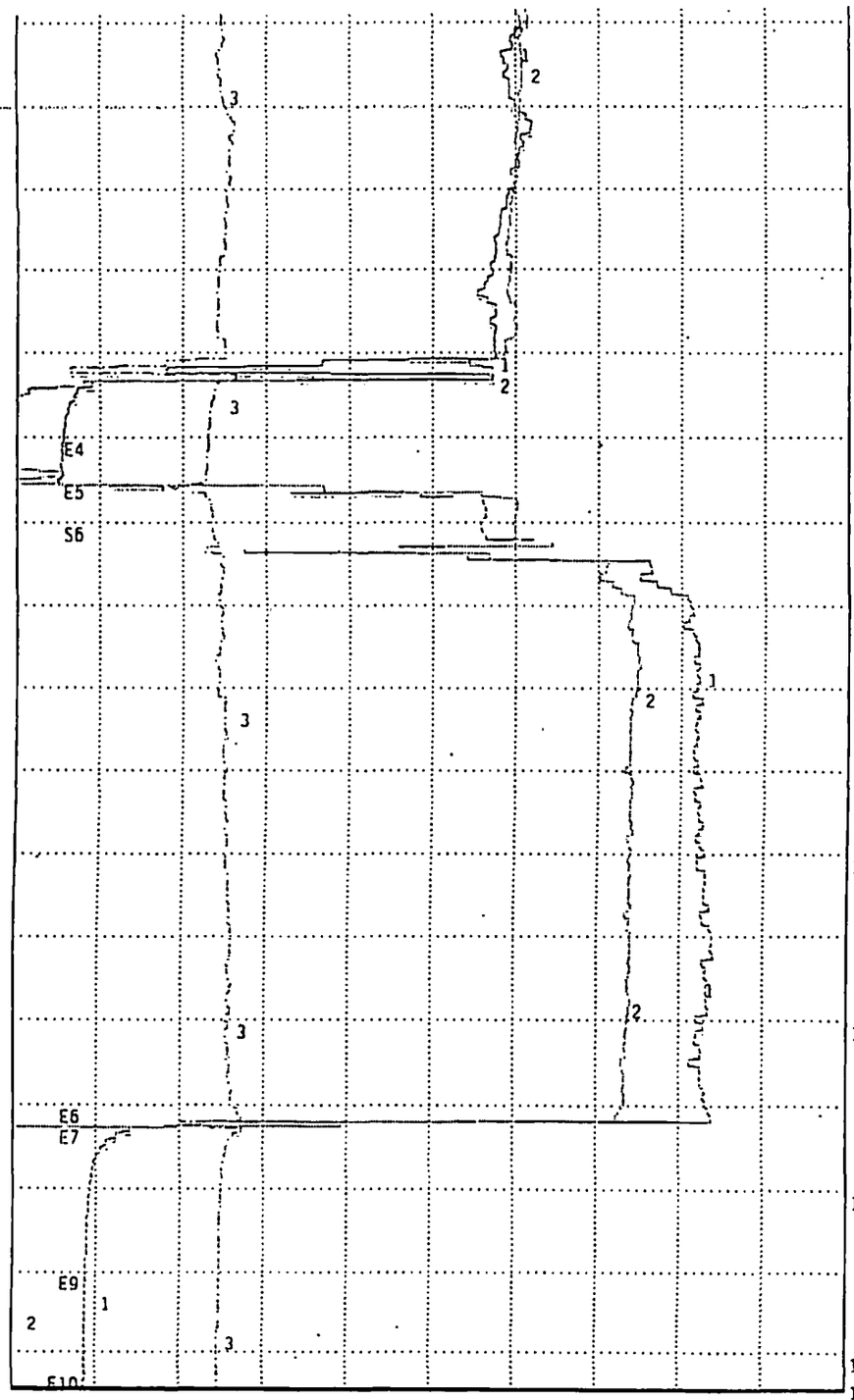


Customer: MURPHY OIL CO
Well Desc: HUBER 5D
Formation: M.C.

Date: 18-Aug-1998
Ticket #: 444329.4
Job Type: PUMP TEST

JOB SUMMARY

JOB START TIME: 09:02:46
JOB END TIME: 12:35:08
JOB DURATION: 03:32:22

STAGES AND EVENTS:

Chart	Time	Slurry Rate (bpm)	Slurry Stage Volume (bbl)	Tubing Press. (psi)	Remark

Customer: MURPHY OIL CO
Well Desc: HUBER 5D
Formation: M.C.

Date: 18-Aug-1998
Ticket #: 444329.4
Job Type: PUMP TEST

STAGE SUMMARY

Stage Times

Stage	Start Time	End Time	Elapsed Time
1	09:07:22	09:36:30	00:29:08
2	09:36:30	10:05:19	00:28:49
3	10:05:19	10:36:16	00:30:57
4	10:36:16	11:06:46	00:30:30
5	11:06:46	11:44:07	00:37:21
6	11:44:07	12:35:08	00:51:01
Total	09:07:22	12:35:08	03:27:46

AVERAGES OR VOLUMES PER STAGE -- Planned Volume vs. Actual Volume

Stage	Planned Sl Volume (bbl)	Slurry Volume (bbl)
1	15.0	15.1
2	30.0	30.9
3	60.0	60.5
4	120.0	120.1
5	180.0	184.6
6	240.0	256.2
Tot/Avg	645.0	667.4

AVERAGES OR VOLUMES PER STAGE -- Strip Chart Variables

Stage	Tubing Pressure (psi)	BHP (Calc) Pressure (psi)
1	348	3807
2	289	3563
3	388	3743
4	773	3724
5	1279	3615
6	1909	3741
Tot/Avg	893	3746

Customer: MURPHY OIL CO
Well Desc: HUBER 5D
Formation: M.C.

Date: 18-Aug-1998
Ticket #: 444329.4
Job Type: PUMP TEST

STAGE SUMMARY

MAXIMUM VALUE PER STAGE -- Strip Chart Variables

Stage	Tubing Pressure (psi)	BHP (Calc) Pressure (psi)
1	444	3903
2	319	3765
3	446	3797
4	926	3882
5	1545	3815
6	2100	3869
Max Job	2100	3903

Customer: MURPHY OIL CO
Well Desc: HUBER 5D
Formation: M.C.

Date: 18-Aug-1998
Ticket #: 444329.4
Job Type: PUMP TEST

OPERATOR LOG

Chart	Time	Slurry Rate (bpm)	Slurry Stage Volume (bbl)	Tubing Press. (psi)	Remark
Event #1	09:02:46	0.00	0.0	6	Start Job
Event #2	09:02:57	0.00	0.0	6	Safety Meeting
Event #3	09:05:50	0.00	0.0	5482	Test Lines
Stage #1	09:07:22	0.05	15.0	270	START PUMPINIG 1/2 BL/MIN
Stage #2	09:36:30	1.07	30.8	310	INCREASE RATE TO 1 BL/MIN
Stage #3	10:05:19	1.54	60.3	343	INCREASE RATE 2 BL/MIN
Stage #4	10:36:16	2.40	119.8	490	INCREASE RATE TO 4 BL/MIN
Stage #5	11:06:46	5.80	184.1	1334	INCREASE RATE TO 6 BL/MIN
Event #4	11:38:51	0.00	0.0	132	COULD NOT GET WATER
Event #5	11:41:13	5.58	0.0	1214	RESUME PUMPING
Stage #6	11:44:07	6.44	256.2	1607	INCREASE RATE TO 8 BL/MIN
Event #6	12:19:11	3.91	0.0	560	Stop Pumping
Event #7	12:19:18	0.00	0.0	349	ISIP Tubing Press 378 (psi)
Event #8	12:24:27	0.00	0.0	224	5 Min Shutin Pres. Tubing Press 224 (psi)
Event #9	12:29:18	0.00	0.0	217	10 Min Shutin Pres. Tubing Press 217 (psi)
Event #10	12:34:19	0.00	0.0	215	15 Min Shutin Pres. Tubing Press 215 (psi)
Event #11	12:35:08	0.00	0.0	214	End Job

Customer: MURPHY OIL CO
Well Desc: HUBER 5D
Formation: M.C.

Date: 18-Aug-1998
Ticket #: 444329.4
Job Type: PUMP TEST

STAGE SUMMARY

Stage Times

Stage	Start Time	End Time	Elapsed Time
1	09:07:22	09:36:30	00:29:08
2	09:36:30	10:05:19	00:28:49
3	10:05:19	10:36:16	00:30:57
4	10:36:16	11:06:46	00:30:30
5	11:06:46	11:44:07	00:37:21
6	11:44:07	12:35:08	00:51:01
Total	09:07:22	12:35:08	03:27:46

AVERAGES OR VOLUMES PER STAGE --

Stage	Tubing Pressure (psi)	Friction Pressure (psi)	Slurry Rate (bpm)	BHP (Calc) Pressure (psi)	Hydraulic Horsepower
1	348	54	0.47	3807	4
2	289	60	1.01	3563	8
3	388	159	1.91	3743	18
4	773	562	3.84	3724	73
5	1279	1181	5.71	3615	200
6	1909	1682	7.05	3741	336
Tot/Avg	893	671	3.54	3746	119

MAXIMUM VALUE PER STAGE --

Stage	Tubing Pressure (psi)	Friction Pressure (psi)	Slurry Rate (bpm)	BHP (Calc) Pressure (psi)	Hydraulic Horsepower
1	444	65	0.60	3903	6
2	319	69	1.13	3765	8
3	446	181	2.05	3797	21
4	926	612	4.04	3882	87
5	1545	1299	6.14	3815	228
6	2100	1859	7.49	3869	381
Max Job	2100	1859	7.49	3903	381

PRODUCTION COMPANY
ONSHORE

TUBING RECORD

Well Name & No.	Field	District	Division
Huber No. 5-D	East Poplar Unit	Poplar	Prod.

K. B. Elevation	Setting Date	Distance K. B. To Casing Head Flange	AFE No.
2092'	November 11, 1997	12'	70402-232900

TUBING STRING DESIGN

JOINTS	COND.	DESCRIPTION	FEET
193	2	2-7/8" Tubing, J-55, 6.5#, Grade 2, 8rd, EUE	6,142.52
1	2	2-7/8" Seating Nipple	1.10
1	1	2-7/8" Baker Model R Double Grip Packer	7.01
	TOTAL		6,132.63

Landed Below R. K. B.	8.00
Landed At	6,140.63
Perforations At	

Tail Pipe Description
1 Joint of 2-7/8", J-55, 8rd., EUE, R-3 Tubing

PACKER

Manufacturer	Size	Weight	Type	Model
Baker	5-1/2"	14-17	Double Grip	R

I.D.	Length	Top Set @	Bottom Set @	Type "J" Assembly

Chokes/Seating Nipples:

Special Equipment Description:

Remarks:

MURPHY EXPLORATION & PRODUCTION COMPANY ONSHORE

TUBING RECORD

Well Name & No.	Field	District	Division
Huber No. 5-D	East Poplar Unit	Poplar	Prod.

K. B. Elevation	Setting Date	Distance K. B. To Casing Head Flange	AFE No.
2092'	July 14, 1999	12'	

TUBING STRING DESIGN

JOINTS	COND.	DESCRIPTION	FEET
197	1	2-7/8" Tubing, J-55, 6.5#, Grade 2, 8rd. EUE	6,110.48
1	2	2-7/8" Seating Nipple	1.10
1	1	5-1/2" Arrow Set Packer	7.84
1	2	2-7/8" Tubing, J-55, 6.5#, Grade 2, 8rd. EUE Tail Pipe	31.14
	TOTAL		6,119.42
Landed Below R. K. B.			8.00
Landed At			6,127.42

Perforations At
6185-6187', 6421-6423', 7240-7250', 7262-7268' and 7272-7276'

Tail Pipe Description
1 Joint of 2-7/8", J-55, 8rd., EUE, Tubing

PACKER	Manufacturer	Size	Weight	Type	Model
	Arrow Set	5-1/2"			

I.D.	Length	Top Set @	Bottom Set @	Type "J" Assembly

Chokes/Seating Nipples:

Special Equipment Description:

Remarks:

MEP-6003 (R8/95)

Signed: Raymond Reede

SCHLUMBERGER

SIDEWALL NEUTRON POROSITY LOG

COUNTY / FIELD or LOCATION / WELL / COMPANY

COMPANY E. A. Polumbus Jr. & Ladd Petroleum Corporation

WELL Huber #5

FIELD East Poplar

COUNTY Roosevelt STATE Montana

Location: SW/NE 1980 FNL 1420 FEL

Sec. 10 Twp. 28N Rge. 51E

Other Services: LGR MOP MLL FDC

Permanent Datum: G.L. , Elev.: 2080
Log Measured From K.B. , 12 Ft. Above Perm. Datum
Drilling Measured From K.B.

Elev.: K.B. 2092
D.F.
G.L. 2080

Date	12/17/68		
Run No.	ONE		
Type Log	EPITHERMAL		
Depth—Driller	7300		
Depth—Logger	7307		
Bottom logged interval	7306		
Top logged interval	4800		
Type fluid in hole	SBM		
Salinity, PPM Cl.	330,000		
Density	9.8		
Level	FULL		
Max rec. temp., deg F.	264		
Operating rig time	5 hrs		
Recorded by	SCANNELL		
Witnessed by	SHELDON		

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
ONE	7 7/8	1028	7300	8 5/8	—	SURF	1028

The well name, location and borehole reference data were furnished by the customer.

EQUIPMENT DATA

Run No.	PGP-D	PNH-A	PGH-A	PGS	Source No.	SFT-116	SGH	Logging Unit	Location
1	329			—			—	2025	WLSTN
2				—					
3				—					

CALIBRATION DATA

Run No.	Gamma Ray API Scale	Gamma Ray Background CPS	Gamma Ray Total CPS	Neutron — Before Log — ACPS Drawer In	Neutron — Before Log — ACPS Drawer Out	Neutron — After Log — ACPS Drawer In	Neutron — After Log — ACPS Drawer Out
1	—	—	—	424	240	408	244
2							
3							

LOGGING DATA

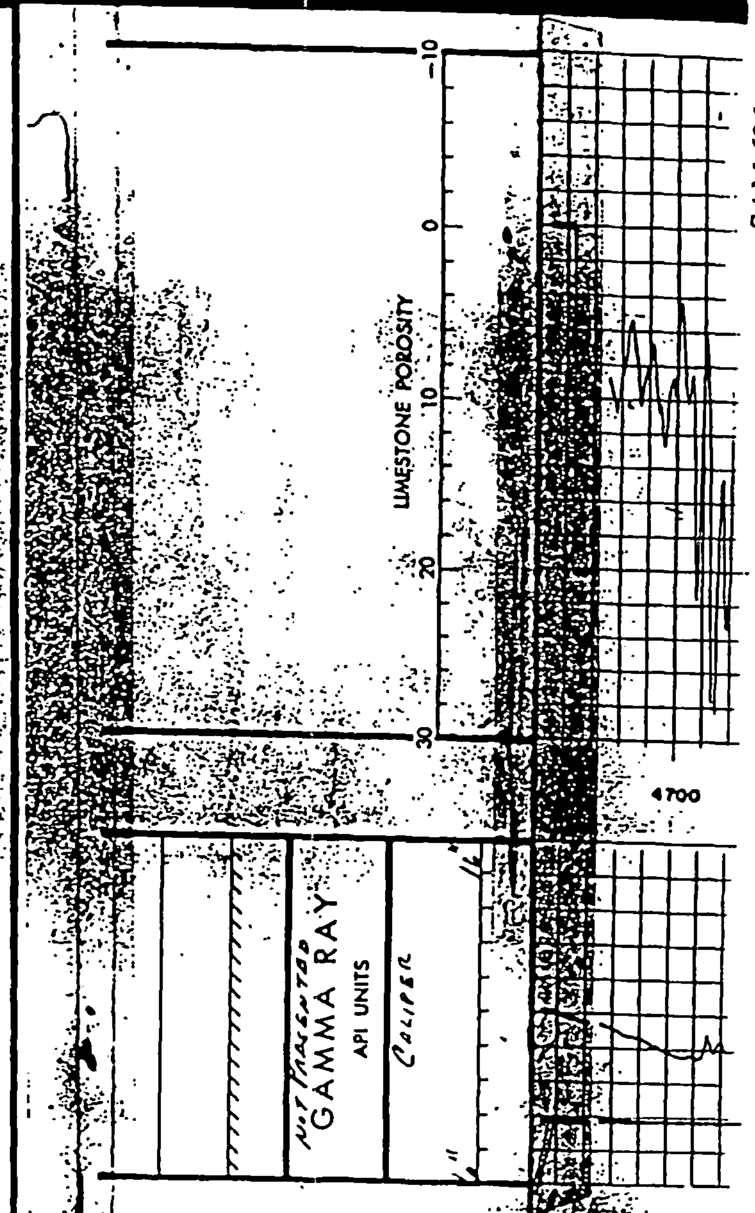
Run No.	General Depths From	General Depths To	Speed Ft./Min.	Gamma Ray TC	Gamma Ray API Scale	Neutron Selectors Matrix	Mud Corr. Setting as PM-NaCl-10	Temperature °F	Porosity Scale
ONE	70	6000	30	2	—	Lime	25	225	30-10-(-10)
	6000	4800	"	"		"	"	250	"

MUD DATA

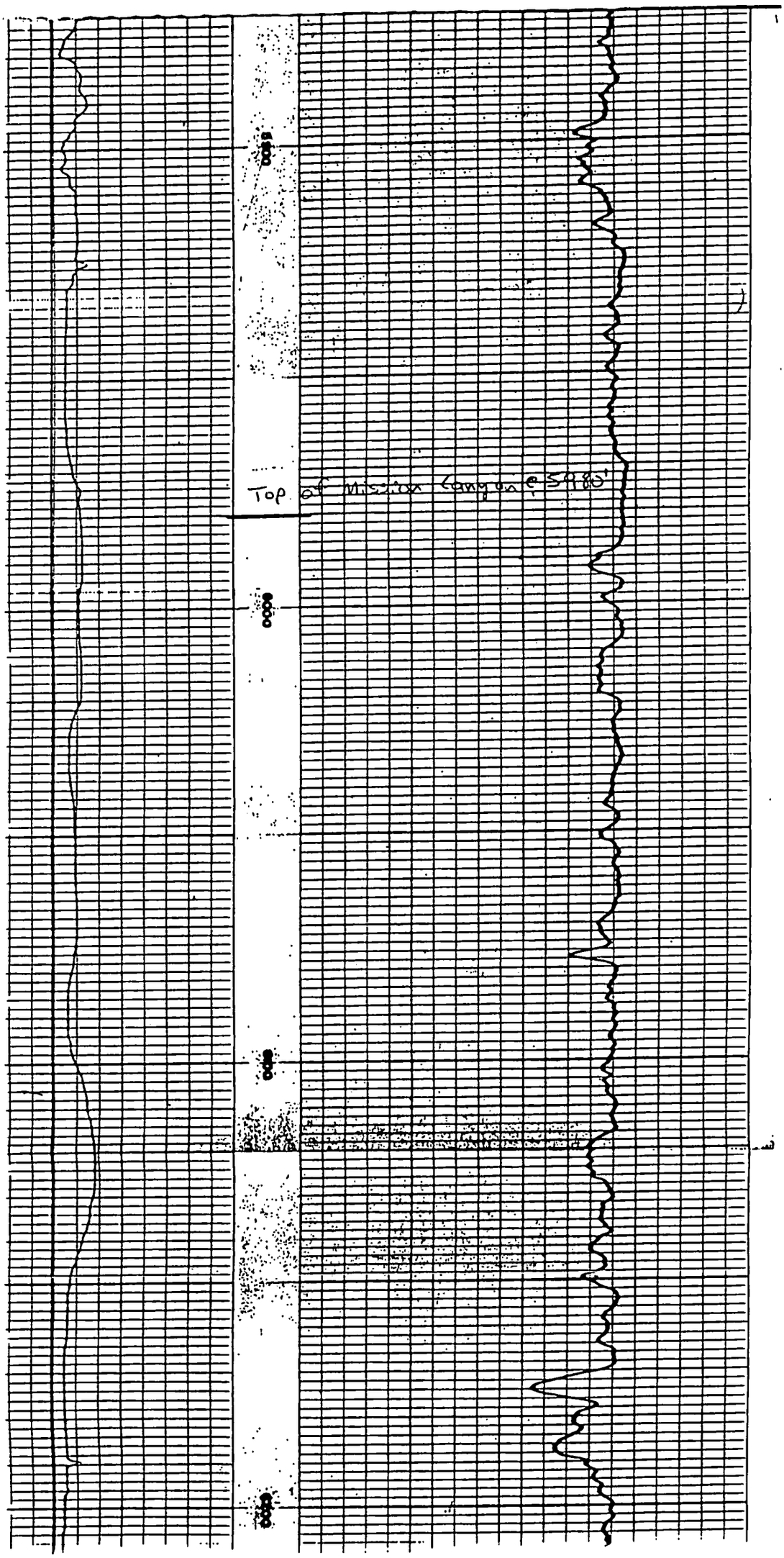
Run No.	Rm.		% Solids by Vol.	% Oil by Vol.	% Water by Vol.	Viscosity, Sec/Qt		Solids, Av. Sp. Gr.
1	.082 @ 60 °F		NA	NA	NA	47 @	60 °F	2.45
2	@	°F				@	°F	
3	@	°F				@	°F	

Remarks:

This interpretation represents our best judgment, based on inferences from electrical or other measurements; we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, damages, or expenses that may be incurred or sustained resulting from any interpretation made by any of our officers, agents or employees.



SAM 626



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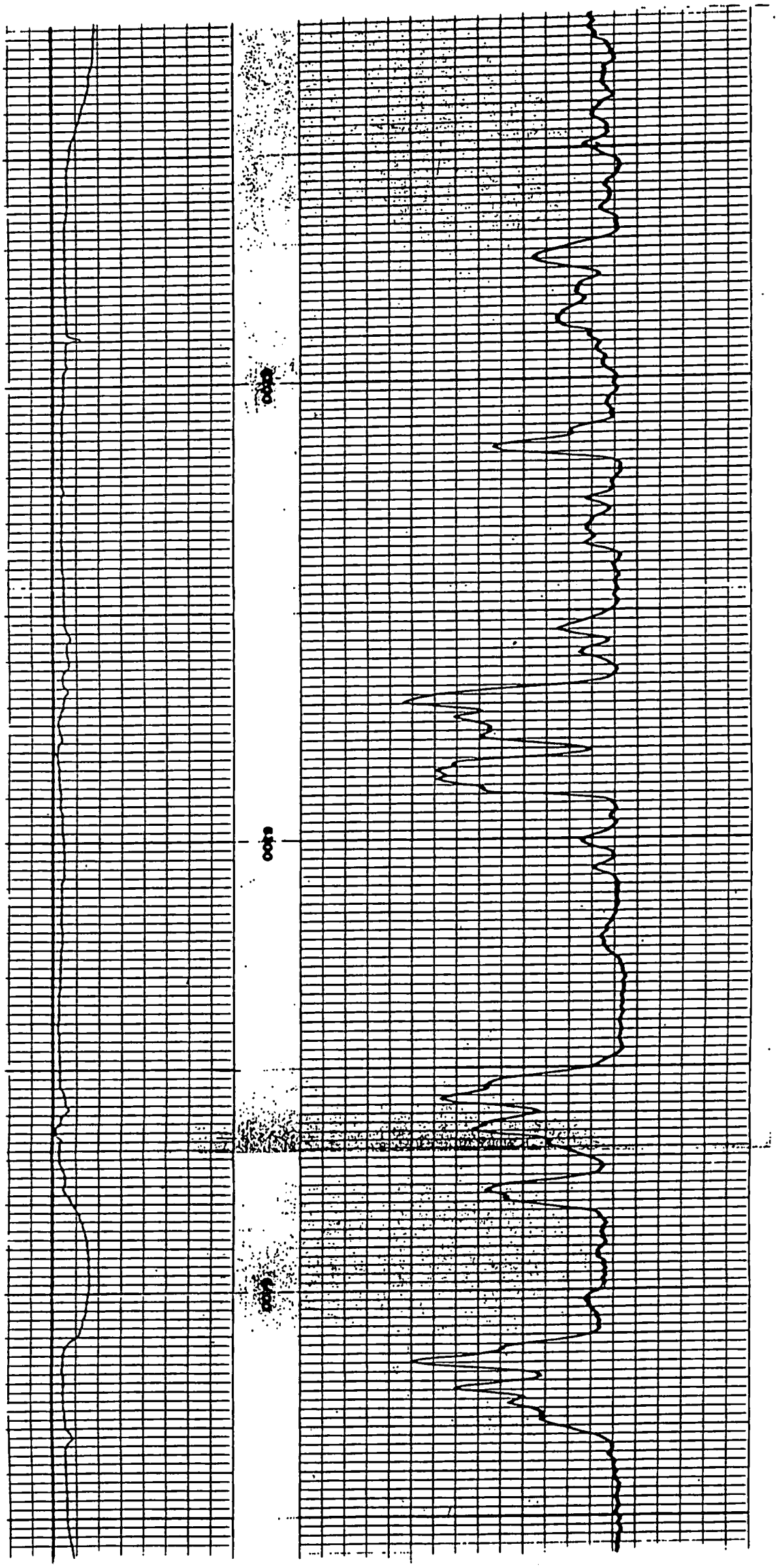

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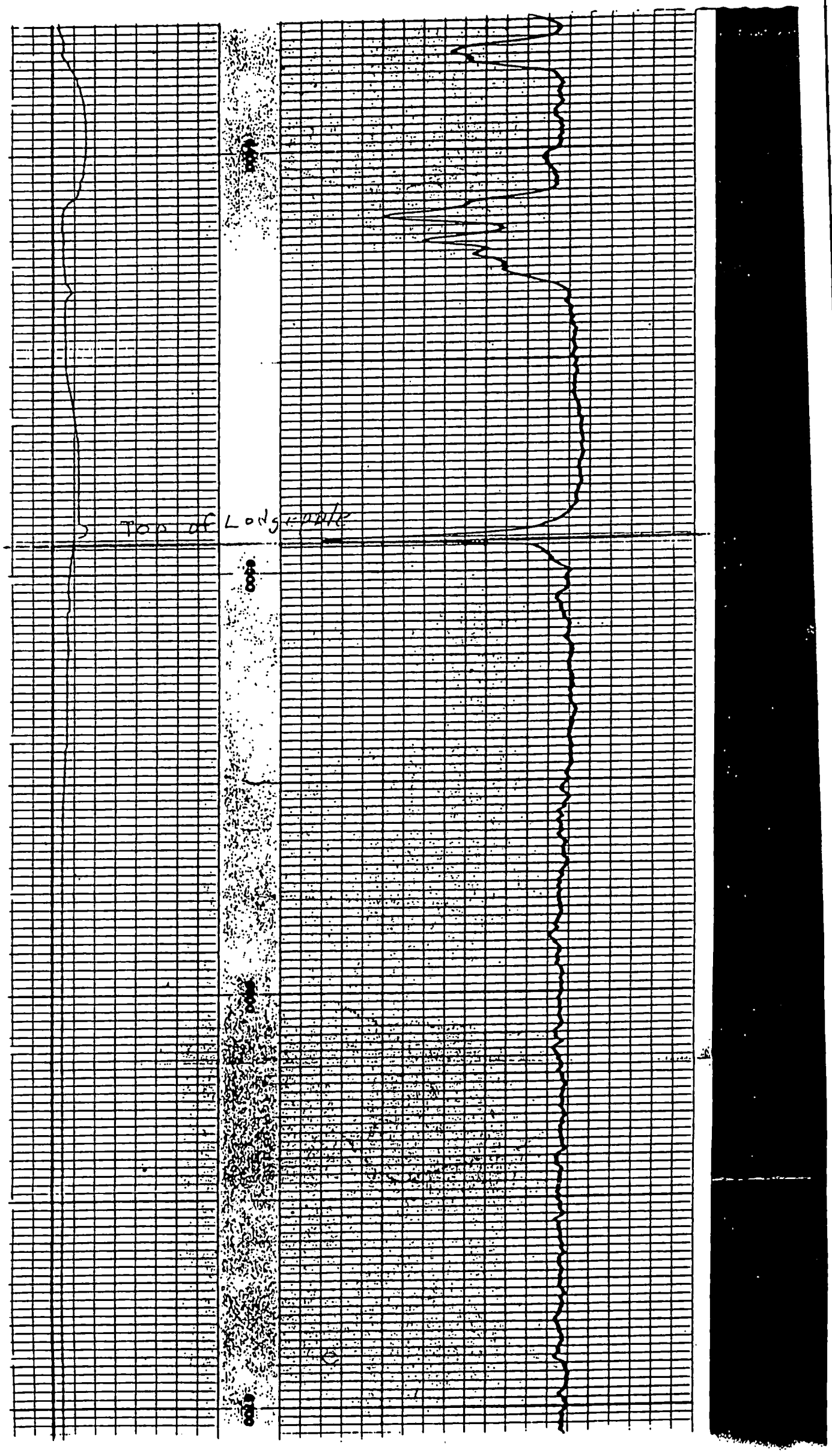


SAM 629

SCHLUMBERGER

LATEROLOG
WITH GAMMA RAY

COMPANY E.A. POLUMBUS JR. & LADD PETROLEUM CORPORATION

WELL HUBER #5

FIELD EAST POPLAR

COUNTY ROOSEVELT STATE MONTANA

LOCATION SW/NE

Sec. 10 Twp. 28N Rge. 51E

Other Services: MLL SNP FDC MOP

COUNTY / FIELD or LOCATION / WELL / COMPANY

Permanent Datum: G.L. Elev. 2080
Log Measured From K.B. 12 Ft. Above Perm. Datum
Drilling Measured From K.B.

Elev.: K.B. 2092
D.F.
G.L. 2080

Date	12/12/68			
Run No.	ONE			
Depth—Driller	2300			
Depth—Logger	2307			
Btm. Log Interval	2302			
Top Log Interval	1028			
Casing—Driller	9 5/8 @ 1028	@	@	@
Casing—Logger	1028			
Bit Size	7 7/8			
Type Fluid in Hole	SBM			
Dens. / Visc.	9.8 / 47			
pH / Fluid Loss	— / 5.6 ml	ml	ml	ml
Source of Sample	FLOWLINE			
R_m @ Meas. Temp.	.097 @ 60 °F	@ °F	@ °F	@ °F
R_{mf} @ Meas. Temp.	.057 @ 61 °F	@ °F	@ °F	@ °F
R_{mc} @ Meas. Temp.	.12 @ 63 °F	@ °F	@ °F	@ °F
Source: R_{mf} / R_{mc}	M / M			
R_m @ BHT	.025 @ 250 °F	@ °F	@ °F	@ °F
Time Since Circ.	6 HRS			
Max. Rec. Temp.	252 °F	°F	°F	°F
Equip. / Location	7025 / WLSTN			
Recorded By	SCANNELL			
Witnessed By	SANDERSON			

FOLD HERE ... The well name, location and borehole reference data were furnished by the customer.

REMARKS

Scale Changes: Type Log | Depth | Scale Up Hole | Scale Down Hole

Equipment Data: Run No. | Tool Type | Pad Type | Tool Pos. | Other

Changes in Mud Type or Additional Samples: Date | Sample No. | Depth—Driller | Type Fluid in Hole | Dens. | Visc. | pH | Fluid Loss ml | Source of Sample | R_m @ Meas. Temp. @ °F | R_{mf} @ Meas. Temp. @ °F | R_{mc} @ Meas. Temp. @ °F | Source: R_{mf} R_{mc} | R_m @ BHT @ °F | R_{mf} @ BHT @ °F | R_{mc} @ BHT @ °F

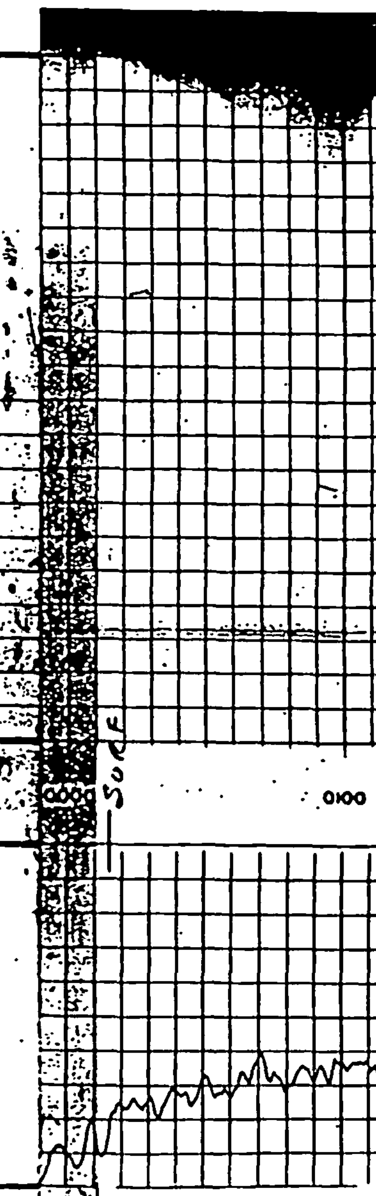
Equip. Used: CART. No.
PANEL No. RLP-A-49
SONDE No.
Spacing: BEAM WIDTH: 1'
GUARD LENGTH: 5'

LATEROLOG
CONDUCTIVITY
MILLIMHOS/M (=1000/OHM-M)
0 500 1000

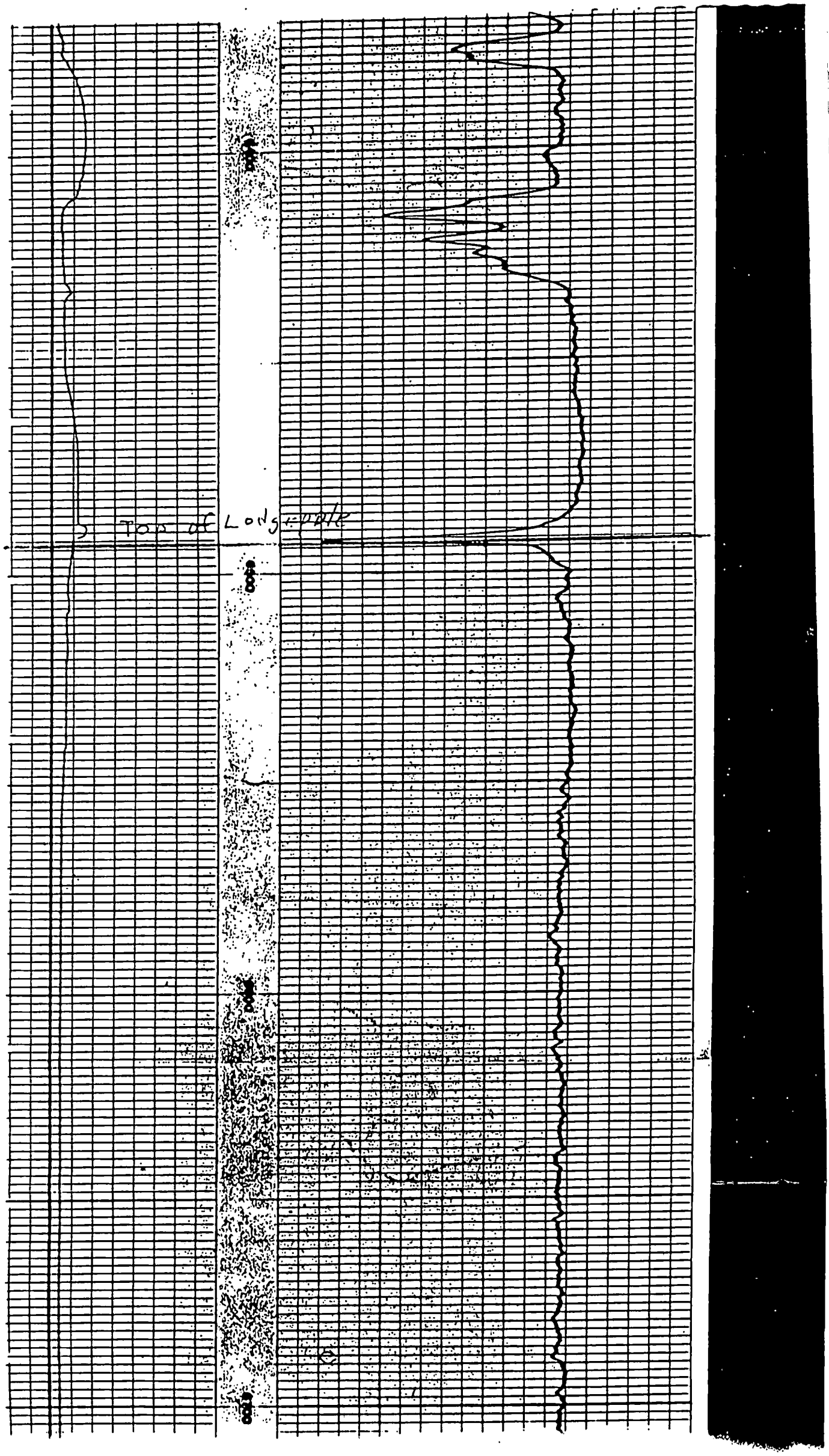
RESISTIVITY
OHM-M
0 10 20 30 40 50 62 83 125 250 ∞

Depths

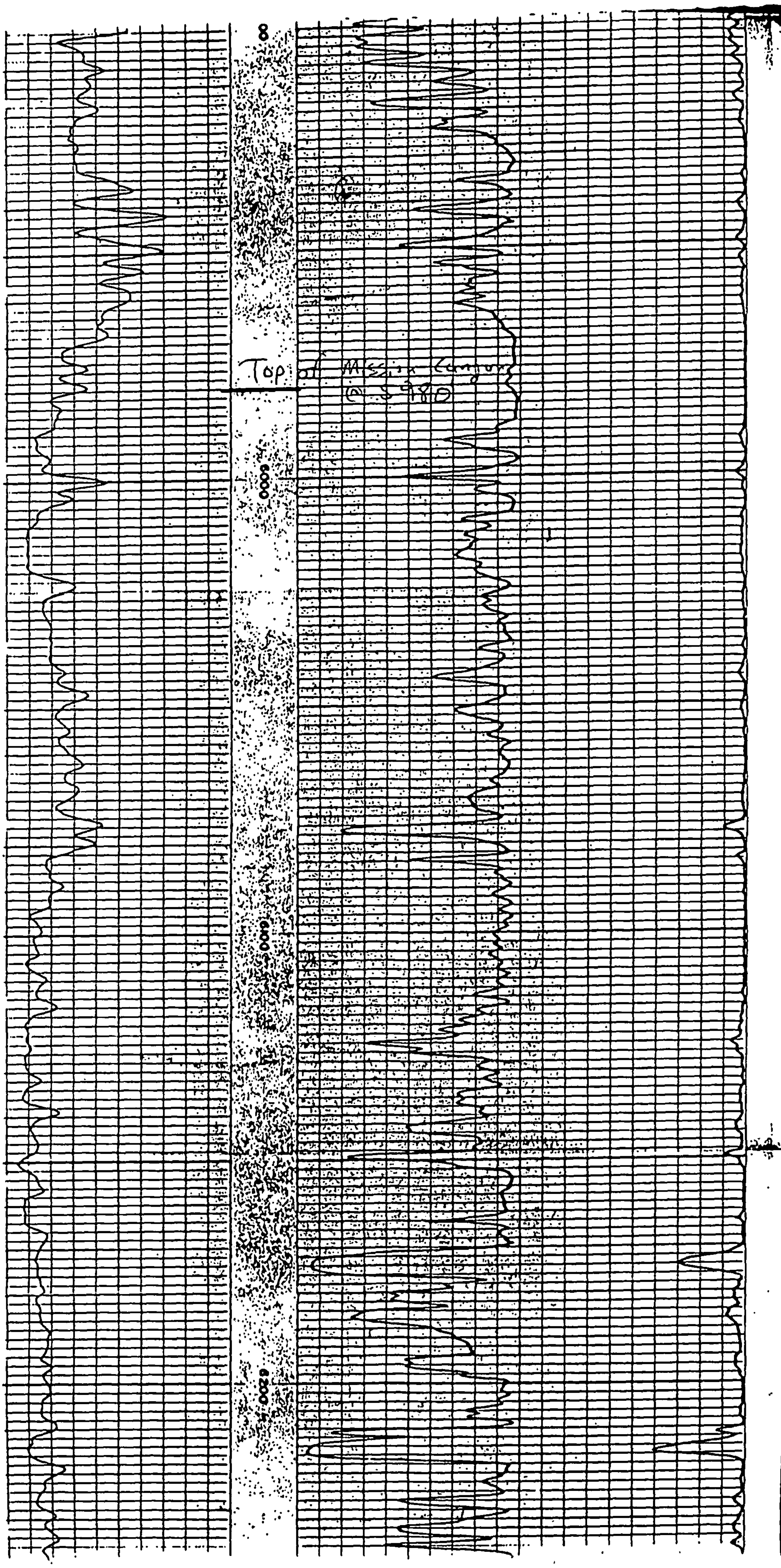
GAMMA RAY
API UNITS
GAMMA RAY ZERO 0 DIV. TO LEFT OF THIS LINE
0 120
120 240

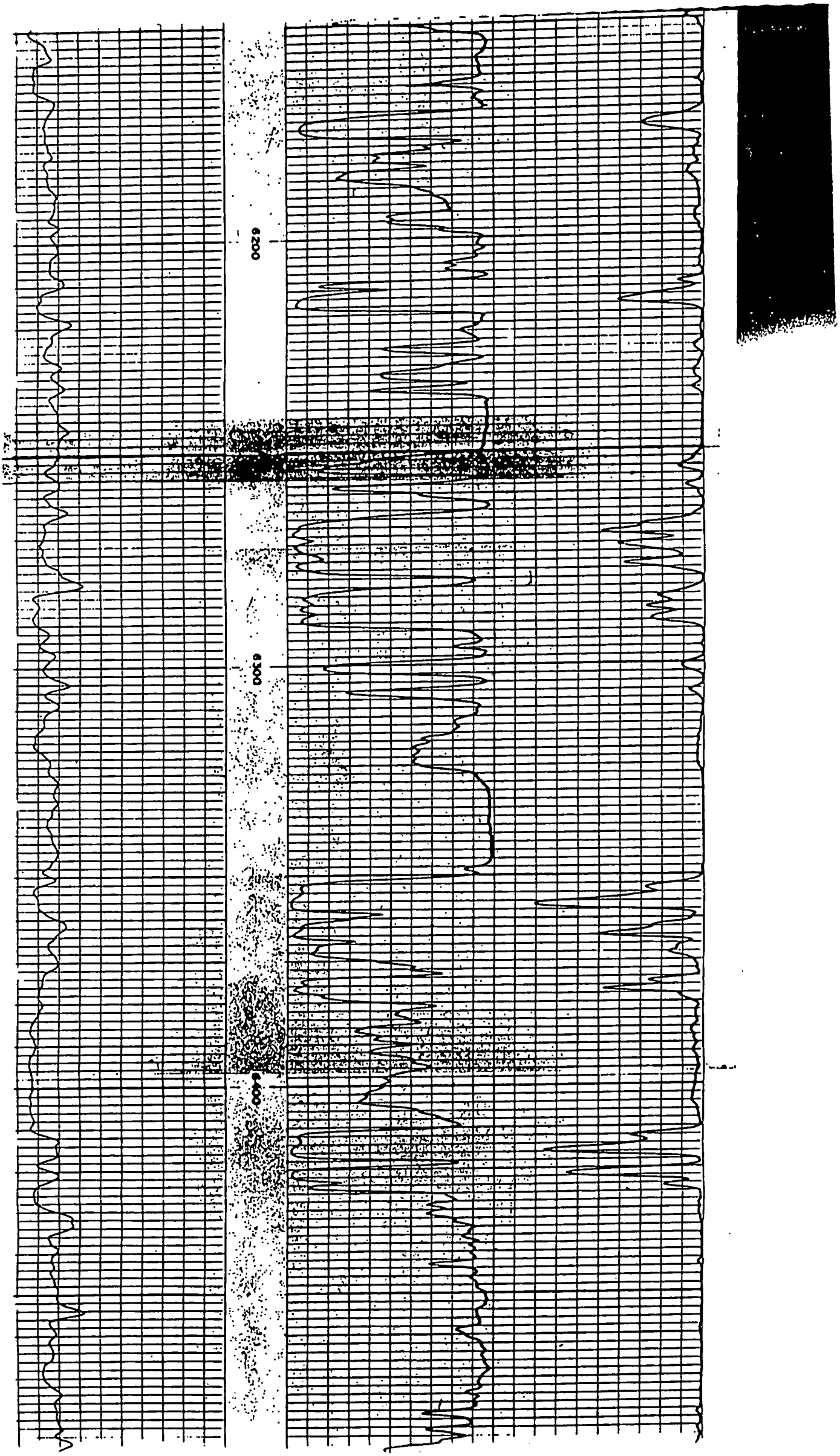


SAM 630

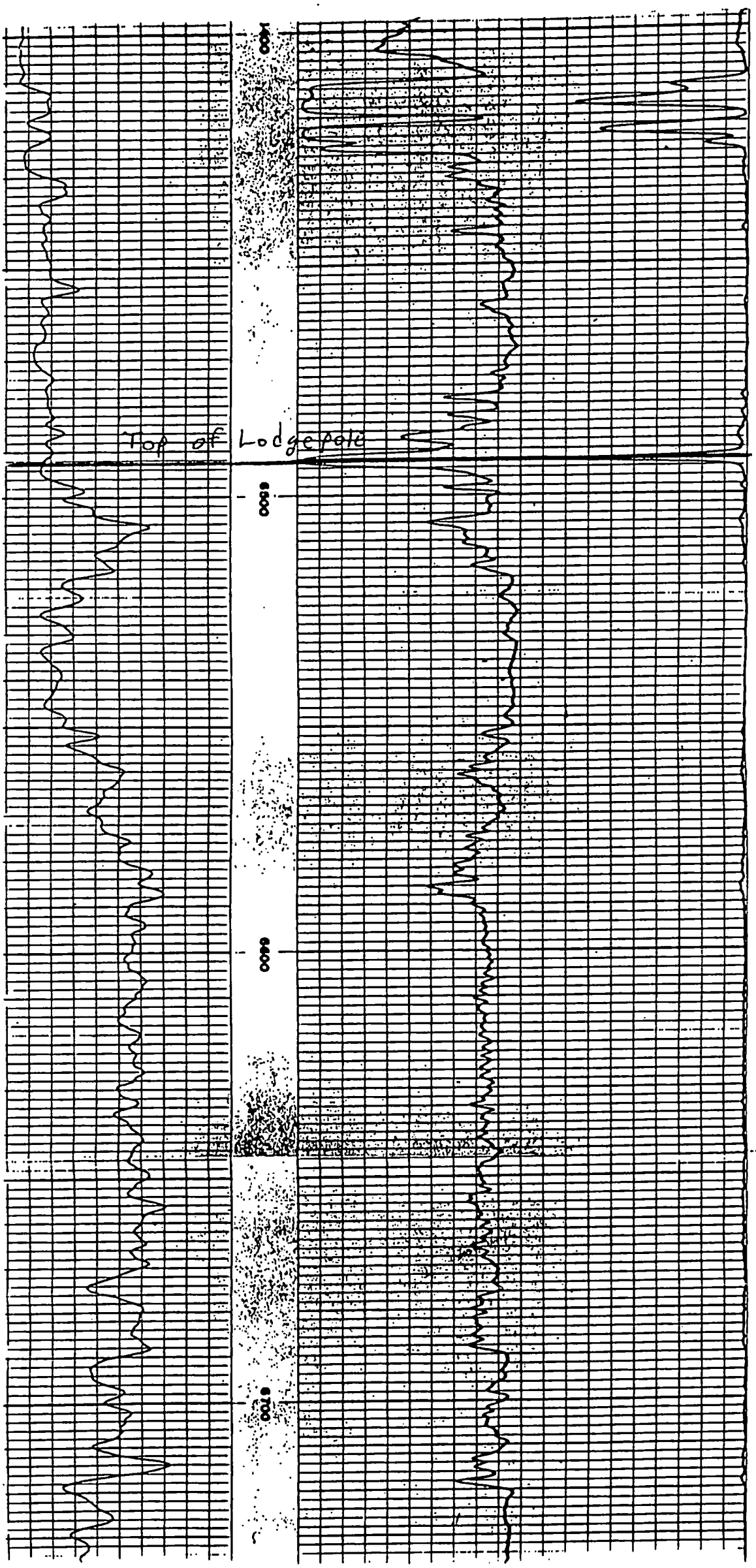


SAM 629


Top of Mission Canyon
@ 5980
6000
6100
6200



SAM 632



SAM 633

SYNERGETIC LOG SYSTEMS

SCHLUMBERGER

This Presentation For:

MOVABLE OIL PLOT

Other Presentations:

LGR, SNP, FDC, MLL

COMPANY E.A. POLUMBUS, JR-LADD PETROLEUM CORP.

J.A. TERTELING & SONS

WELL E.P.U #110-X

FIELD EAST POPLAR

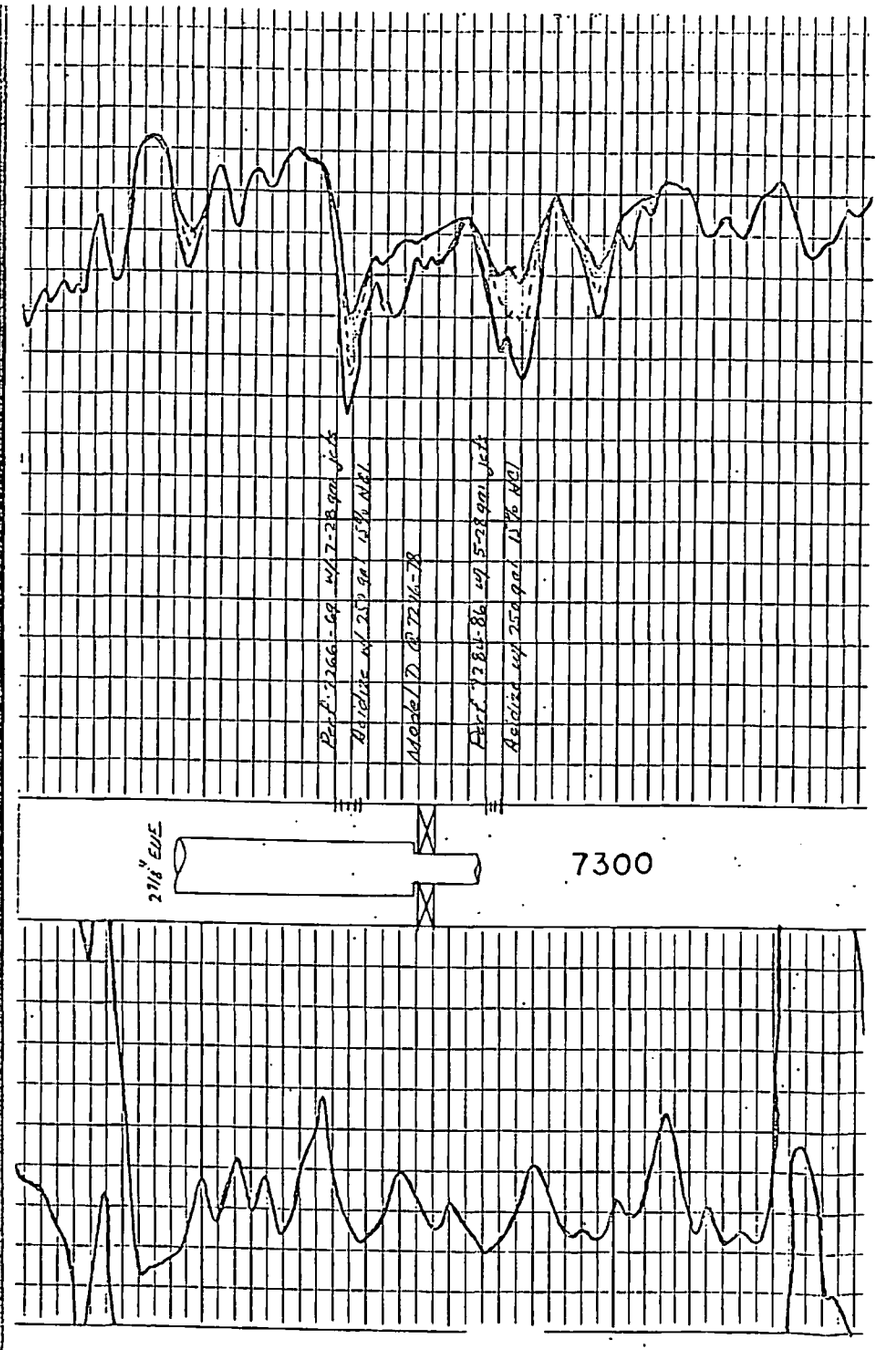
COUNTY ROOSEVELT STATE MONTANA

DATE 6-6-69

RUN NO. ONE

LOCATION
NE/SE
660'FEL - 1650'FSL
SEC-10-TWP 28N - RGE 51E

ELEV. 2104 KB
---- DF
2092 GL



WEDGE DIA-LOG, INC.

ACTIVE TRACER SURVEY

COMPANY MURPHY EXPLORATION

WELL HUBER #5 SWD

FIELD EAST POPLAR

COUNTY ROOSEVELT STATE: MONTANA

LOCATION

SEC 10 TWP 28N RGE: 51E

PERMANENT DATUM GL ELEV 2088'

LOG MEASURED FROM KB 12 FT. ABOVE PERM. DAT

DRILLING MEASURED FROM KB

ELEV.: K.B.: 2092'

D.F.: 2091'

G.L. 2088'

OTHER SERVICES

10/20/97

ONE

R/A TRACER

7380'

7245' PBTD

7245' TO 5850'

MAST TRAILER

WATER

N/A

N/A

FULL

6348

LMOTLEY

MR RTEDE

WILLISTON

7105&348

B. BOECKEL

RECORD

	SIZE	WEIGHT	FROM	TO
	S 1/2	17#	SURFACE	7387'
	2 7/8	TBG	SURFACE	6044'

CASING RECORD

DRILLING CONFORMS TO AGI STANDARD PRACTICES FOR

NOTES

TRACER LOSSES ARE SHOWN ON PRE LOG GAMMA RAY AND IN THE TABLES

PERFORATIONS: 6185-6187; 6421-6423; 7242-7264

PUMPING RATE: .50 BWPM
PUMPING PRESSURE: 1300 PSIG

10/20/97 PUMP TRUCK SHUT DOWN AT 12:00PM TO FIX LEAKS ON PUMP- STARTED PUMPING AT 12:15 .
PUMP TRUCK RAN OUT OF WATER AT 14:00 STARTED PUMPING AT 14:45
PUMP TRUCK BROKE DOWN AT 16:15-SHUT DOWN OVERNIGHT
COMPLETED SURVEY 10/21/97

SURVEY SHOWS PERFORATIONS AT 6185-6187 TAKING 91.12% OF THE PUMPED FLUID AND THE REST MOVING DOWN HOLE OUTSIDE THE CASING

NO INDICATION OF CHANNELING UP

NO FLOW INSIDE THE CASING AT 6201'

NO INDICATION OF THE PACKER LEAKING

PBTD: 7245'

Corrpro Companies, Inc.
"A Commitment to Excellence"
505 North 24th Street
Billings, Montana 59101
Tel 406-248-7170 • 800-448-7170
Fax 406-248-7304

May 30, 1999

Murphy Oil Corporation
PO Box 547
Poplar Montana
59255

Attn. Mr. Ray Reede

Re: Cathodic Protection System installation, activation and repair

Dear Sir:

We have completed the installation of the new cathodic protection system for the Huber 5-10 disposal well. The cathodic protection system consists of 8 each, 3"x60", linseed oil treated, graphite anodes back-filled with 500 pounds of calcined petroleum cokebreeze per anode. Anode lead wires are #8 AWG with HMW-PE insulation. The anodes are installed horizontally at a depth of 8 feet. Anode spacing is 15 feet. The positive cable is #6 AWG with black HMW-PE insulation. The negative cable is #6 AWG with white HD-PE insulation. The groundbed is powered by an RTS model CSAYSD 24-16 AZ rectifier that is pole-mounted. An "as-built" drawing of the cathodic protection system has been included with this letter.

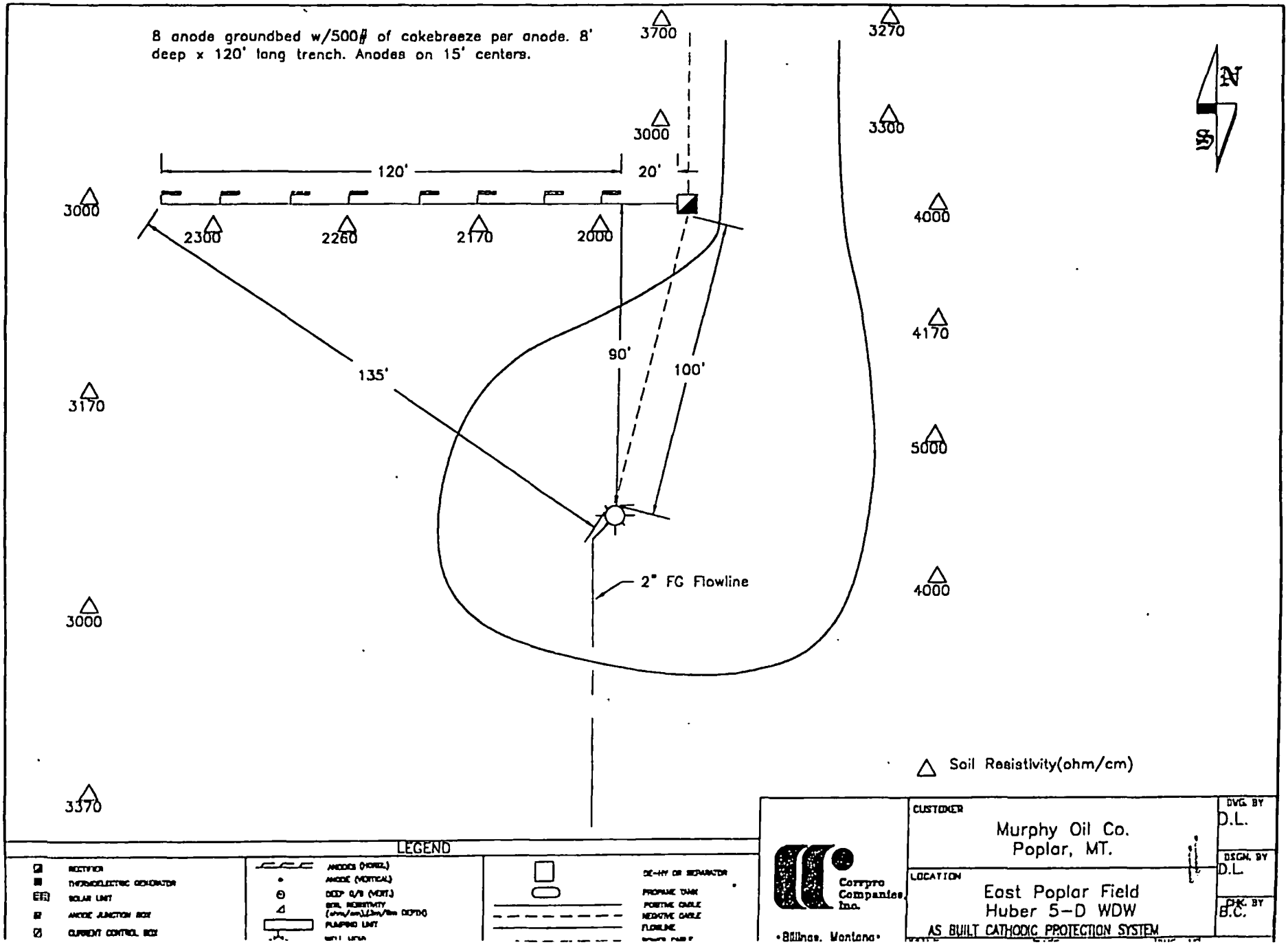
Testing and repairs were also completed on the rectifier at the 80-D disposal well. A new transformer and rectifier stack assembly was installed and the rectifier was placed back into service. Both rectifiers were adjusted to target current outputs of 10.0 amps to the well casings. Potential levels noted on the well casings indicated high protection levels at both sites. The flowline at the 80-D disposal well was found to be shorted to the casing. An insolating union should be installed to separate the well casing from the surface facilities. No other problems were noted at this time.

It has been a pleasure being of service in your corrosion mitigation program, if you have any questions or require additional service please contact us.

Respectfully Submitted,

Brent Cathey

Brent Cathey
Corrpro Companies Inc.


8 anode groundbed w/500# of cokebreeze per anode. 8' deep x 120' long trench. Anodes on 15' centers.
3700
3270
3000
3300
120'
20'
3000
4000
2300
2260
2170
2000
4170
90'
135'
100'
3170
5000
2" FG Flowline
4000
3000
3370
N
S
△ Soil Resistivity(ohm/cm)
LEGEND
RECTIFIER
THERMOELECTRIC GENERATOR
SOLAR UNIT
ANODE JUNCTION BOX
CURRENT CONTROL BOX
ANODES (HORIZ.)
ANODE (VERTICAL)
DEEP G/B (VERT.)
PUMPING UNIT
DE-HY OR SEPARATOR
PROPANE TANK
POSITIVE CABLE
NEGATIVE CABLE
FLOWLINE
Corrpro Companies, Inc.
•Billings, Montana•
CUSTOMER
Murphy Oil Co.
Poplar, MT.
LOCATION
East Poplar Field
Huber 5-D WDW
AS BUILT CATHODIC PROTECTION SYSTEM
DWG. BY
D.L.
DSGN. BY
D.L.
CHK. BY
B.C.

Murphy Oil Corp
East Poplar Field
Activation Data

Disposal Well 4D

Rectifier Data

Universal
MWC-3
220/480 VAC
28 VDC
18 ADC

	As Found	As Left
Date		5/24/99
Tap Setting	OFF	C1-F1
DC Volts		5.5
DC Amps		10.0
Circuit Res.		0.55

Potential Data	Static	ON	
Casing	550	1046	
Flowline	550	1046	No isolation Kit

Disposal Well Huber 5-D

Rectifier Data

RTS
CAYSAD 24-16
480 VAC
24 VDC
16 ADC
Ser # C983706

	As Found	As Left
Date	New Site	5/22/99
Tap Setting		A-4
DC Volts		4.25
DC Amps		10.00
Circuit Res.		0.43

Potential Data	Static	ON
Casing	610	1070
Flowline	Fiberglass	

(10)

EQUIPMENT INVENTORY

LEASE AND WELL: HUBER (Devonian) #5 STATUS: PRODUCER

EQUIPMENT - ITEM	MAKE	TYPE, SIZE & DESCRIPTION	NUMBER	VALUE
CASING HEAD-TUBING HEAD	OTC	Series 900	1	C
TUBING	_	2-7/8" EUE 8 rd	7,215	C
FLOW-LINE	_	2" Hydril	1,300	-
PACKER	BAKER	Model 'R' Single Grip	1	C
TREATER	NATIONAL	6 X 20' Vertical	1	C
CASING	_	5-1/2" OD 14 & 17# 8 rd	7,306	-
TANKS	_	500 BBl. Steel Welded	2	C

[illegible] : $21,500